5. Model Transit Services

5.1 Nepean Nipper

5.2 Brisbane Hail & Ride

5.3 Perth CAT

5.4 Sydney Explorer/Olympic Explorer

5.5 Canberra Trials

5. MODEL TRANSIT SERVICES

This chapter reviews a number of innovative public transport systems introduced in Australian cities in recent years, elements of which may serve as models for the proposed new system in Canberra's Central National Area.

The systems reviewed are the 'Nepean Nipper'- an enhanced service model operating in Sydney's outer west; the inner Brisbane 'Hail and Ride' system which serves both community and leisure related needs; the Perth Central Area Transit (CAT) system which serves commuters, shoppers and visitors; the tourist oriented 'Explorer' services in Sydney (including the 'Olympic Explorer'); and recent trial services in Canberra which operated between the Old and New Parliament Houses during late 1999 and from Regatta Point to the Parliamentary Zone to celebrate Australia Day, 2000.

The systems offer the opportunity to examine public transport operations which serve a variety of markets - including commuter feeder services in suburban locations; mixed community and leisure services; purely tourist services; to mass demand mixed use services in the inner city.

5.1 NEPEAN NIPPER - OUTER WESTERN SYDNEY

The 'Nepean Nipper' services were introduced in 1993 by Westbus, Australia's largest private bus and coach operator, as a commercial response to long term declining patronage levels. (Moston, 1995)

Looking to recent experience in the United Kingdom and Europe which showed that patronage improved when frequencies were higher, Westbus sought to introduce a similar model into selected segments of its extensive suburban network.

It's market research indicated "customers wanted reduced waiting times, they wanted to be dropped off as close as possible to their front doors, they wanted easy access buses with reduced step heights, they wanted to sit closer to the driver to have that personal contact and they wanted to be separate from school bus travel as much as possible." (Moston, p 2)

A four stage strategic plan of action was initiated to bring improved services to fruition:

1. Location of trial

With the Penrith railway station and shopping centre forming a central nodal point for the catchment suburbs on both sides of the railway and with relatively flat terrain well suited to smaller bus operations, Westbus selected its Penrith area services as the basis for the trial.

2. Industrial agreement

A new award for drivers was negotiated to assist offset the additional costs involved in establishing and operating the enhanced services. In return for a $30 per week wage increase, all shift allowances would be discontinued and all overtime would be capped at a rate of 1.5 times the base rate.

3. Service planning

To meet customer needs extensive consultations were undertaken to plan for reduced waiting times; a 'hail and ride' service permitting pick-up and drop-offs between designated bus stops; more accessible buses which could stop closer to the kerb; passengers to sit closer to the driver; separate school services; and higher frequencies which would

compensate for commuters delayed by late running trains (noting a key role of the Nipper service is to provide feeder services to Sydney's main western rail line stations).

4. Implementation

Mercedes Benz model 812 midi-buses were selected to operate the services as they provided the range of features required to meet passenger and operational needs. The 26 seat vehicles offered easy entry through low floor heights and on board storage for shopping, prams, etc.

Branded as 'Nepean Nipper', services commenced on 18 February 1993. With the withdrawal of most of its conventional fifty seat buses frequency was effectively doubled on all affected routes and service levels improved, particularly at off-peak times on weekdays and on weekends. Demographic analysis showed that some 95 per cent of catchment residents would have access to a high-frequency service. (Moston p 3)

"The investment made by the company for the Nepean Nipper services totalled three million dollars in capital investment for the buses, research and planning costs in producing new routes and schedules, wage costs for the additional drivers employed and funding that was required to cover the time lag between service introduction and the relevant growth in patronage and revenue. The introduction also enabled 18 new jobs to be created in the western suburbs." (Westbus, 2000, pp 1-2)

Although total labour costs increased by $420,000 per annum some significant cost savings were also accrued through the operation of smaller vehicles. Fuel, maintenance and depreciation all fell markedly. With greater patronage (up 24% weekdays; 61% Saturdays; 67% Sundays; and 27 % overall) healthy increases in revenues followed and were reinvested back into further service improvements. With the purchase of an additional 50 midi buses for $5 million similar service improvements were implemented in St Marys and Mt Druitt during 1995. (Moston, p 4)

Review of operations

Following discussions with Westbus management in August 1999, the author travelled on random services on 24 August 1999 to directly experience current Nepean Nipper operations - some 6 years since their introduction. Two services were surveyed - routes 794 and 790. (Figures 5.1, 5.2) The most noticeable feature was the significant *reduction* in frequency since Nepean Nipper services were introduced in 1993. The much publicised *minimum* 15 minute daily frequencies now only occur at some peak periods; night services now cease long before midnight; and weekends have only hourly services during the day and no services at night. (Westbus, 1997) Details of impressions follow.

Route 794 Penrith - Regentville - Glenmore Park

This route (shown at Figure 5.3) links the bus interchange at the Penrith railway station, passes south through the main shopping precinct (passing Penrith Plaza and Nepean Square) via Mulgoa Road to skirt the western edge of the suburb of Jamisontown. It then passes under the M4 Motorway and enters the newly developing suburb of Glenmore Park via a traffic management device which permits only buses to access this point. In common with most outer metropolitan suburbs developed in recent decades the road network follows a circuitous and cul-de-sac model which makes the provision of easily accessed public transport difficult. As a result, route 794 completes two separate single direction loops and retraces significant parts of the trip during the approximately 32 minutes it takes from Penrith railway station to the route terminus.

Figure 5.1 Nepean Nipper bus – Route 790 at Penrith Interchange

Source: Author (1999)

Figure 5.2 Nepean Nipper bus – Route 790 – showing interior

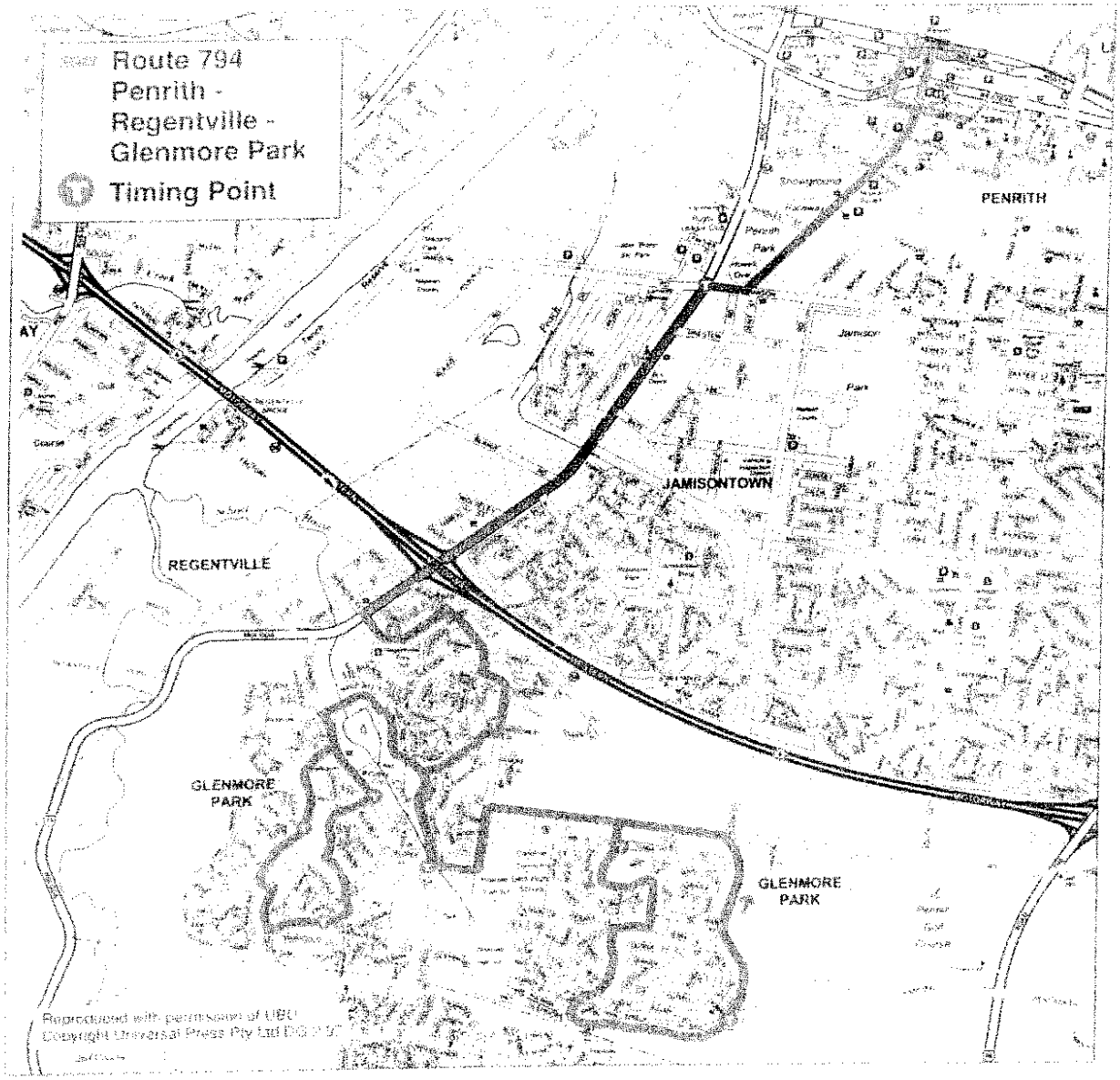
Source: Author (1999)

The frequency of service on Route 794 is average to poor - on weekdays the inbound (to Penrith station) morning peak provides departures about every 20 minutes; every 30 minutes in the off-peak; every 15 minutes during the outbound (from Penrith station) evening peak; but far fewer services at night with the last service leaving at 9.14pm. On Saturdays services operate hourly from about 6.30am to 6.30 pm (inbound); and on Sundays and holidays from about 8.45 am to 5.45pm (inbound). (Westbus, 1997)

Route 794 was observed in the early afternoon and relatively lightly loaded. While the midi-bus was an ideal size for the essentially low demand suburban route, one of the very noticeable features of the vehicle was its relative lack of rider comfort. The combination of

the vehicle's jerky manual transmission and the circuitous route with much cornering made the journey quite uncomfortable, even at low speeds.

Figure 5.3 Nepean Nipper Route 794



Source: Westbus Timetable (1997)

The driver advised that hail and ride was no longer generally practiced due to the demands it placed on keeping to timetable, especially at peak times. To compensate, bus stops appeared to relatively closely spaced, although shelters and passenger information such as timetables and route maps at stops were rare. The use of smart card to purchase tickets, was, according to the driver, not generally used. In common with most private sector bus operators, the total reliance on on-bus payment of cash fares, slowed passenger boardings significantly.

The main issues of concern with this service are the poor frequency at nights (Monday to Sunday), and the particularly early cessation of service on weekends.

Route 790 Penrith - Kingswood - Claremont Meadows - St Marys

Route 790 (shown at Figure 5.4) basically operates an east-west service linking the Penrith CBD with Kingswood station; the University of Western Sydney (Nepean) Kingswood and Werrington campuses; the new suburb of Claremont Meadows and through to St Marys CBD and terminates at the bus-rail interchange. Claremont Meadows is, like Glenmore Park, not well designed for bus services and here the route forms a large 'S' to traverse the suburb. Despite the importance of the two University campuses and TAFE in generating passengers, the bus route operates around the perimeters rather than providing more convenient stops within these institutions' large campuses. The route is scheduled to take about 35 minutes from Penrith to St Marys and vice versa.

The frequency of service on route 790 is, like route 794, only average during the day but very poor at night and on weekends . A 30 minute frequency is provided throughout the day with a 15 -20 minute peak service only offered to link Claremont Meadows passengers to St Marys station on weekdays. At night, services depart both Penrith and St Marys hourly with the last buses departing before 9pm. On weekends and holidays the frequency is hourly during the day with all services ceasing by 7.00pm. (Westbus, 1997)

Route 790 was observed from Penrith to St Mary's in the mid afternoon. The midi-bus left Penrith station crowded with school children. Passenger comfort deteriorated further when a young family boarded at Penrith shopping centre with baby, pram and shopping bags. The bus was at capacity a number of times along the route - so much so that it turned away a number potential passengers due to overcrowding. The driver advised that this situation was a regular occurrence and that requests for dedicated school services were not heeded by management.

Route 790 has a particularly poor frequency for a service that serves important trip generators such as the University and the TAFE. In common with Route 794 this service also has poor frequency at nights (Monday to Sunday), and particularly early cessation of service on weekends.

Analysis

Nepean Nipper set a new (much enhanced) standard for outer suburban public transport when introduced in 1993. It offered excellent frequencies at times to suit most passengers. It provided a well researched, innovative hail and ride service with new, more efficient vehicles which provided enhanced passenger accessibility.

While frequencies appear to have been significantly reduced, the services offered are understood to remain superior to those prior to 1993. The current service remains reliable (apart from some capacity problems), friendly; and provides basic integration with the railway system and other Westbus services.

It must be noted, however, that the loss of 15 minute frequencies and good night and weekend services is a major disincentive to patronage growth. The discontinuation of hail and ride, poor promotion and lack of ongoing service innovation all combine to deter riders. The midi-buses, while more manoeuvrable are relatively uncomfortable, not air conditioned, and do not accommodate wheelchairs. Lacking a second door, when crowded they can be very slow to load and unload.

Recent patronage trends are not available due to commercial confidentiality (Westbus is a private company) but it is hard not to conclude that current ticketing practices must act as a major deterrent to attracting passengers. The over reliance on the archaic pay as you board system causes delays and poses security risks for drivers. The lack of multi-ride, transfer or discounted periodical tickets offers no incentive to encourage regular patronage.

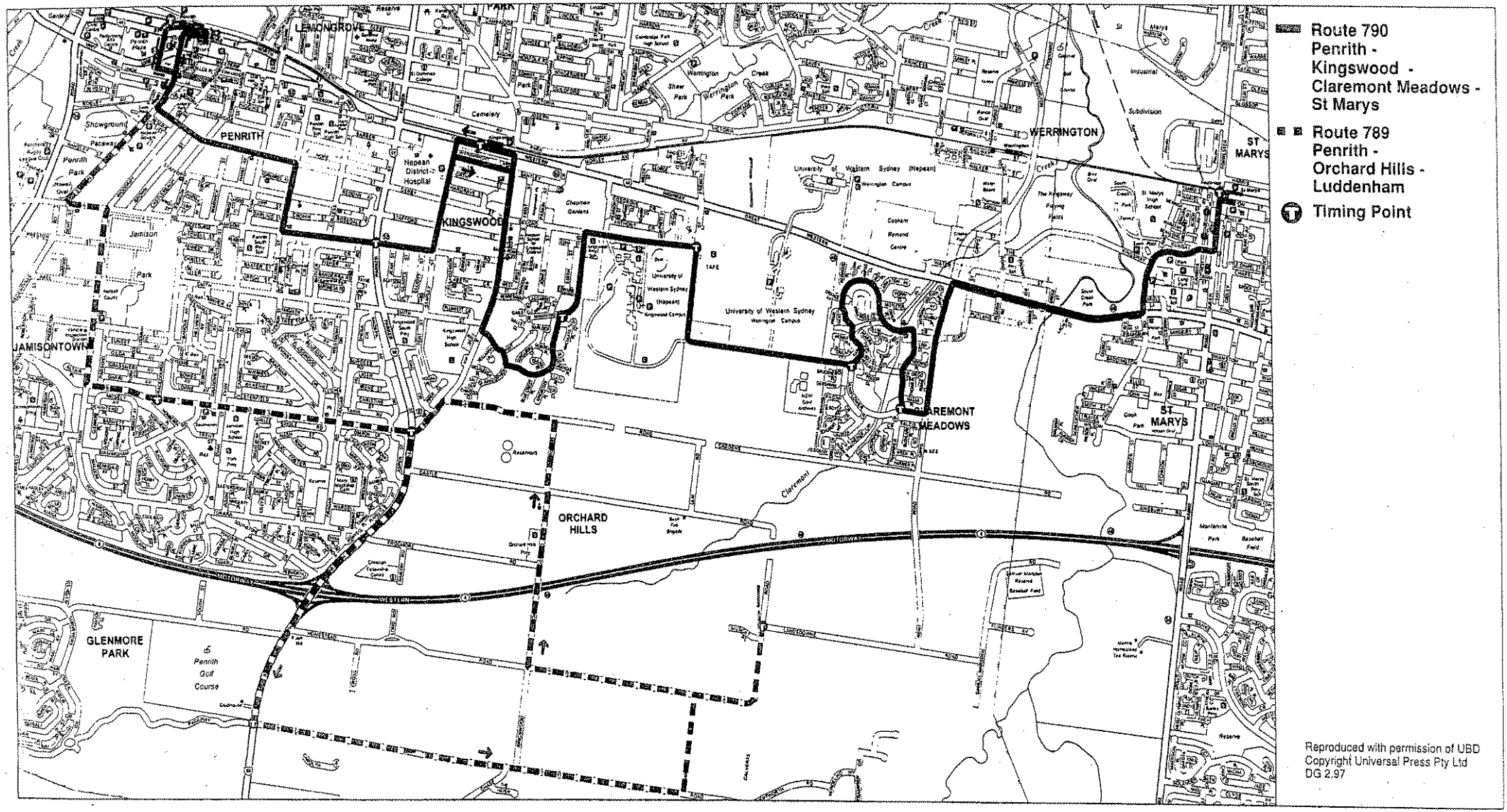


Figure 5.4 Nepean Nipper Route 790

Source: Westbus Timetable (Dec 1997)

Evaluation

In its current form the suburban oriented, feeder nature, of Nepean Nipper service is probably less suited to serve a busy central Canberra market. The congested and uncomfortable nature of the vehicles with their poor access and slow ticketing regime would be problematic on shuttle type routes with fast exchange of passengers essential.

Nevertheless, some valuable lessons may be learned from Westbus' commitment to market research; labour market reform; choice of vehicles and enhanced operational efficiencies. It should also be noted that as a private sector operator, Westbus undertook major reforms at considerable commercial risk - and unlike the public sector, cannot access a much larger pool of resources for capital investment and operational subsidies.

5.2 INNER BRISBANE - HAIL AND RIDE

The 'Hail and Ride' concept was implemented by Brisbane Transport, the provider of public transport (bus and ferry) for the City of Brisbane. (Lunt, 1995; Brisbane Transport, 2000) Hail and Ride commenced in selected inner suburbs in 1994 and 1995 to meet emerging community demands for an enhanced level of service within local areas. The key objectives were to provide a user-friendly bus service which:

- connected local trip destinations;
- offered a high frequency of service which made timetables unnecessary;
- provided a high level of reliability with similar hours of operation each day;
- employed friendly, customer oriented drivers;
- used a simple flat fare structure; and
- offered the convenience of no fixed bus stops.

The flexibility required of Hail and Ride meant that large, rigid buses, common to most urban bus fleets in Australia were unsuitable for the task. Smaller, more manoeuvrable buses offered lower operating costs; the opportunity to increase service frequencies; and expand into areas away from main thoroughfares. Implementing hail a bus and set down on request service provided passengers with easier access and enhanced security. With relatively short, self-contained routes within a local area, passengers found it easier to understand how the service worked and developed rapport with regular drivers.

"The key to its success is reduced capital and operating costs coupled with a high frequency service which picks up and sets down on a clearly defined route at the whim of the passenger." (Lunt, p 1)

Following extensive market research which examined demographics; existing travel patterns and modes; and community consultation, two inner-city areas were identified as suitable to introduce a hail and ride service - at Highgate Hill/West End and New Farm/Teneriffe. Both these areas were characterised by having significant proportions of their work and leisure related travel wholly contained within these local areas. (Lunt, p 6) Prior to introducing the service, the proposed routes were market tested through:

- letterbox drops to all residents advising them of the research findings and details of the route service being proposed;
- public displays at Council offices and libraries, etc
- Council members writing to all constituents advising them of the services; and
- advertising details of the proposed services in the local press.

The feedback received from the community following the market testing actions assisted to fine tune the services. (Lunt, p 8)

An important element in planning for Hail and Ride services was to ensure that the proposed new services were complementary to existing public transport - which in this case focussed on existing the bus and ferry services provided by Brisbane City Council. Neither of the hail and ride services operate into the CBD of Brisbane but both have extensive linkages to services which do so.

The main 'attractors' to the Hail and Ride services are Brisbane's highly popular leisure and recreational facilities (including the Southbank beach; the Queensland Cultural Centre and Performing Arts Complex; Brisbane Convention and Exhibition Centre; the 'Gabba' Cricket Ground; markets and bar/restaurant precincts (such as Hardgrove Road, West End; Commercial Road, Newstead); the connecting ferry services; railway stations; community sporting centres, shopping centres; hospitals, and educational institutions (see Figures 5.5 and 5.6 which show area of operation).

Trials of Hail and Ride services commenced within the Highgate Hill area on the south bank of the Brisbane River in February 1994. Following its success, the New Farm service commenced in May 1995.

Review of operations

Highgate Hill/West End

Initially launched as Route 444 - Highgate Hill Hail and Ride, but later renamed as Route 198 - West End Hail and Ride, the route follows a one-way loop about 12 kilometres in length (see Figure 5.5). The route starts in Boundary Street, West End and traverses Highgate Hill, Dutton Park, Buranda, Woolloongabba and South Brisbane (and deviates via South Bank on weekends and holidays). The total running time to complete the circuit is 35 - 40 minutes depending on traffic conditions.

The service operates daily (Monday to Sunday) between 7.00am and 7.00pm but the timetable has been altered from the universal 10 minute frequency in 1994 when the service commenced. Currently a 12 minute headway is provided Monday to Friday, but on weekends and holidays the service is every 20 minutes. (Lunt p 6; Brisbane Transport, 1999)

Patronage

Initial forecasts estimated that 600 passengers would use the service each day. Within twelve months patronage had reached some 1,000 boardings and up to 1,300 users on some days. (Lunt, p 9)

Patronage was generally spread evenly throughout the day, although loadings spiked around 3.00 pm on school days. The busiest loading points included the route terminus, the main shopping precinct and the hospitals. The vast majority (almost 80 per cent) of users purchased tickets on board the bus and of these some 59 per cent used concession tickets. (Lunt, p 9)

In 1999, Route 198 was understood to be attracting about 15,000 passengers per month. (King, 1999)

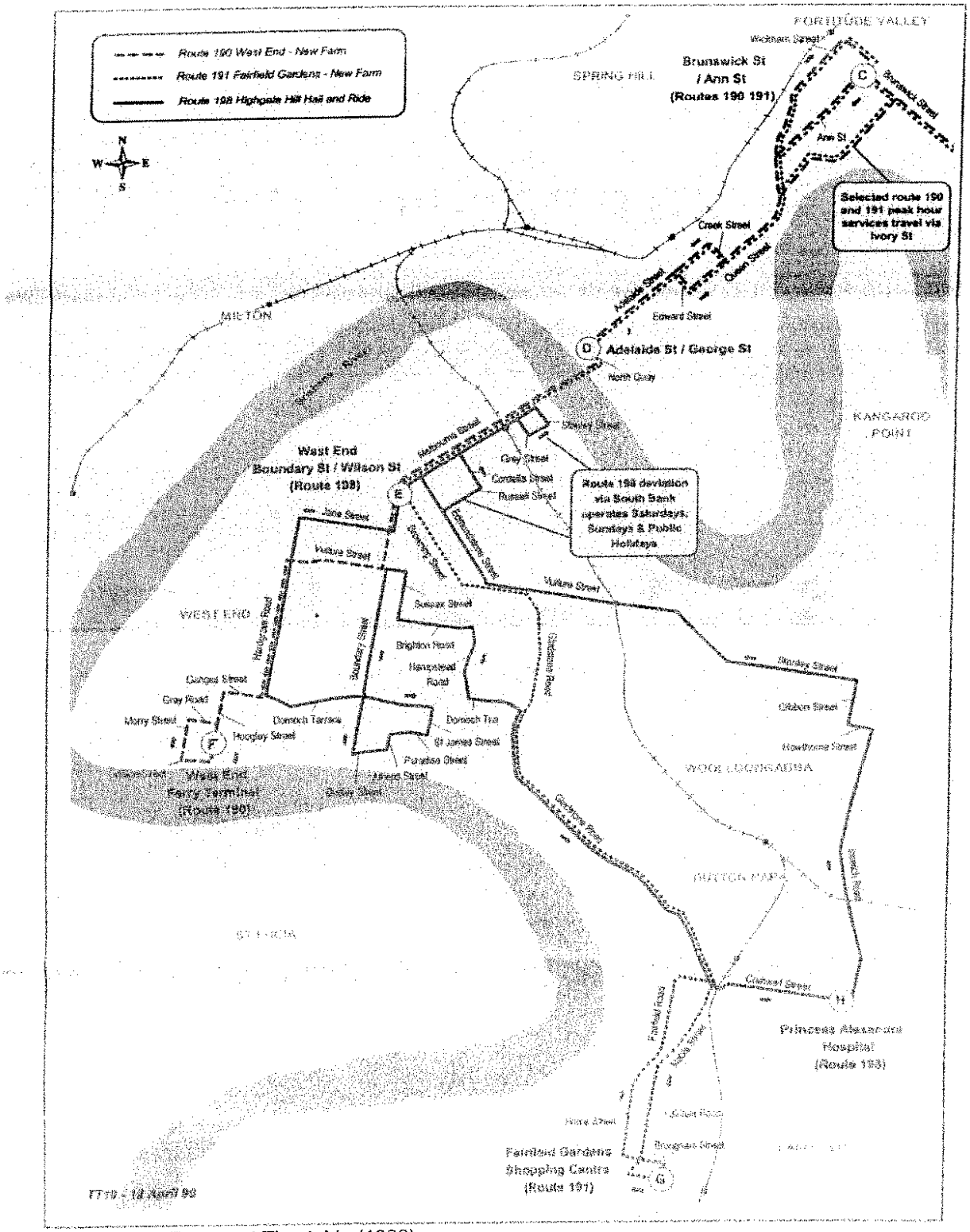
New Farm - Teneriffe

Launched in May 1995 (originally as Route 555, but renumbered as Route 199 in 1998) the New Farm Hail and Ride route follows an 7.5 kilometre one way anticlockwise loop route

starting at Merthyr Village, New Farm (see Figure 5.4). It then passes through the urban renewal areas of Teneriffe; the Fortitude Valley; and, via Brunswick Street, to the New Farm Park ferry terminal. The full circuit takes 25 minutes.

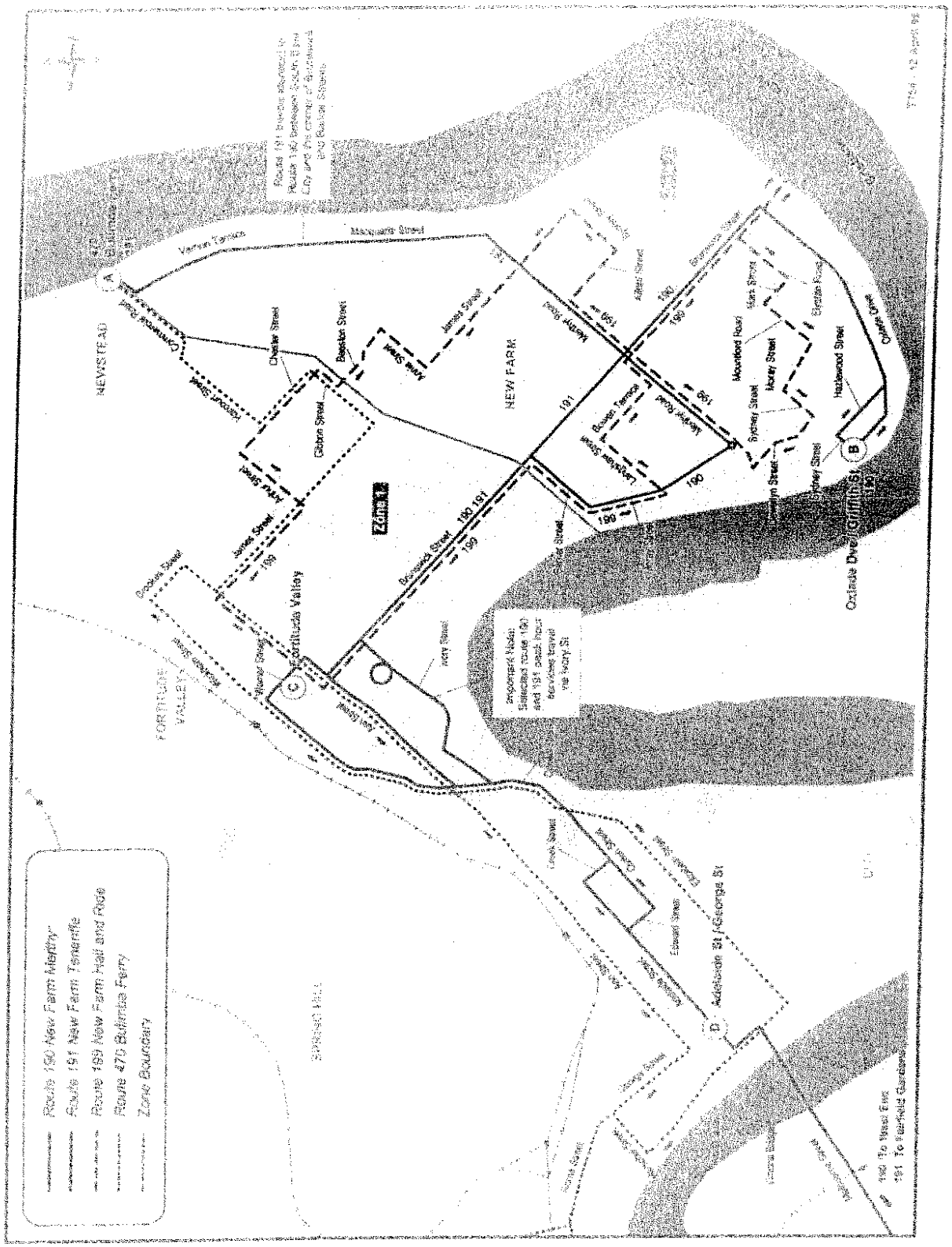
The service operates daily (Monday to Sunday) between 7.00am and 7.00pm but the frequency has reduced from every 15 minutes when the service commenced to a 30 minute headway currently. (Lunt p 6; Brisbane Transport, 1999)

Figure 5.5 Brisbane Hail and Ride Route 198



Source: Brisbane Transport Timetable (1999)

Figure 5.6 Brisbane Hail and Ride Route 199



Source: Brisbane Transport Timetable (1999)

Patronage

Initial patronage levels were about 350 people per day with a growth rate of 7 per cent per week. (Lunt, p 10) However the level of patronage growth was not sustained (perhaps due to the New Farm area having fewer major 'attractors' compared to Route 198 in West End).

Although promoted as an 'Art Circuit' serving some 17 galleries en route and subsequent claims of increased popularity (Transit Australia, 1997, p 255) usage remained insufficient to justify the frequency offered. Services were later halved (to every 30 minutes) by withdrawing one of the two buses operating the service. Inevitably, monthly patronage has declined to only 2,500 people, many of whom are elderly locals. (King, 1999)

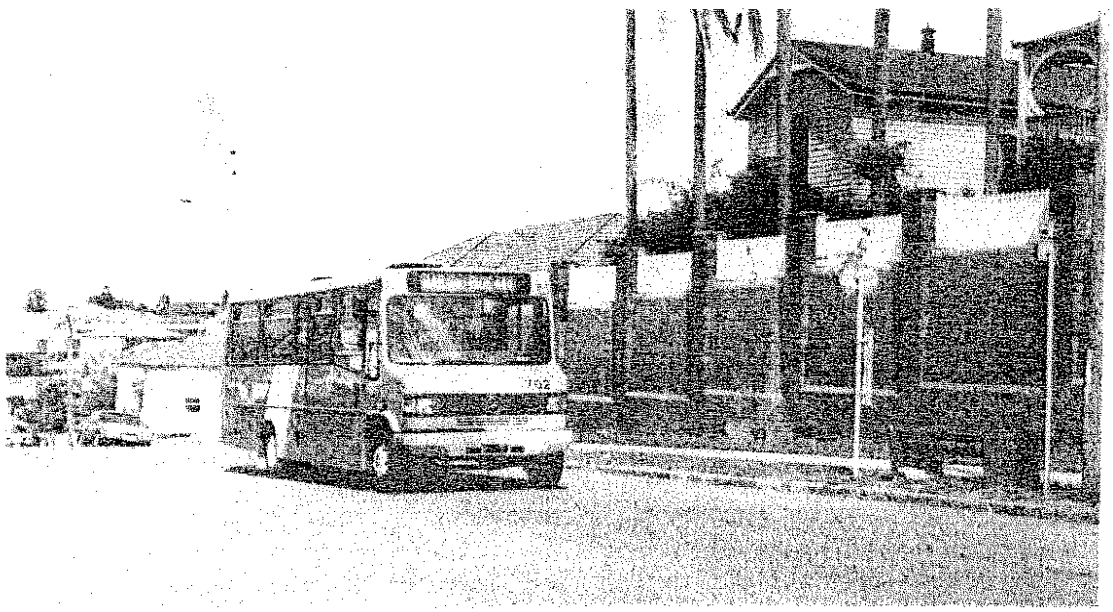
Infrastructure

The West End route utilises 25 seat Mercedes L0812 disabled accessible midi-buses. Initially, four distinctive green liveried buses were leased to maintain the required 10 minute frequency.

The New Farm service operates with smaller 20 seat Mercedes L0814D midi-bus. (Figure 5.7) It features a wheelchair access ramp, one wheelchair position and one metre wide doors. Disability access is enhanced by the bus' capacity to 'kneel' on either side which permits loading from either side - a particularly useful feature to overcome the high camber on many Brisbane roads (to accommodate heavy storm run-off). Lunt (p 7) also reported that drivers had been specially trained to assist passengers with disabilities and the hail and ride wheelchair facility was being used an average of seven times weekly.

At $2.85 kilometre, the leased Mercedes buses were understood to have high fuel consumption and maintenance costs - largely due to the nature of the routes they service with consistent stop-start operation and significant traffic congestion. Replacement vehicles such as MAN midi-buses were under consideration for purchase at a capital cost of about $200,000 plus $11,000 for wheelchair access, subject to budget considerations. (King, 1999)

Figure 5.7 Brisbane Hail and Ride bus – Highgate Hill service



Source: Transit Australia (1994) p 127

Bus stops

A unique feature of the hail and ride service, compared to other routes operated by Brisbane Transport, is that the buses may pick up and set down at any point which is considered both safe and practicable for driver and passenger. While there is no need for bus stops some infrastructure such as route signage, timetable display and seating has

been placed to promote the service. (Lunt, p 7). Green painted kerbs identify safe hail places - with exceptions generally at busy intersections; no standing and loading zones. (Transit Australia, 1994, p 127)

Staffing

Hail and Ride saw the implementation of a new industrial award which provides for greater service efficiency and staff productivity. The innovative system permits better career progression from workshop tasks through to driving full size buses in return for reduced pay rates when operating the smaller Hail and Ride services; extended daily hours before overtime rates apply; meal breaks taken outside depots; and responsibility for cleaning, fuelling and minor mechanical work. (Transit Australia, 1994, p 128) The nine drivers involved were dedicated to the Hail and Ride services and therefore became known to their regular passengers. This was acknowledged favourably by both drivers and passengers which, according to Lunt, "...built a 'community feeling' ... and assisted to grow patronage." (p 7)

Following an agreed period of time working the Hail and Ride services (generally not less than six months) the driver may then move to other driving duties within the Brisbane Transport network.

Fares

Hail and Ride provides for a simple flat fare structure which, even after the impact of the GST, offers relatively economical travel. Fares (from 1 July 2000) are $1.60 full fare and $0.80 concession. A range of discounted multi-trip as well as off peak tickets are also available (although the useful option to freely transfer within 2 hours to other network services was reportedly abolished from 1 July 2000). (Transit Australia, 2000, p 185)

Promotion and marketing

During the launch phase of Hail and Ride a detailed communication campaign was implemented. Local press carried advertisements commencing two months prior to starting the service while local businesses and community groups distributed brochures and timetables from their premises. Through the medium of direct mail every resident within the catchment area was provided with information material as well a complimentary ticket (valid for 14 days from commencement) to sample the new services. (Lunt, pp 8-9)

The distinctive midi-buses were painted bright green and yellow with all promotional material carrying a "Go Green" slogan exhorting the environmental benefits of the service. (Transit Australia, 1994, pp 128-129)

Costs

Lunt's 1995 paper reported that the total costs of operating both Hail and Ride services, including leasing and running six buses; labour; and training, were about $950,000 per annum. This equated to about $160,000 annually per bus - operating 12 hours daily 7 days a week. (pp 9-10)

The longer established Highgate Hill service was reporting revenues of $230,000 per annum - representing a cost recovery rate of about 50 per cent. The New Farm route was expected to earn around $75,000 per annum which was 25 per cent of costs. (Lunt, p 9-10)

While neither service was demonstrating commercial viability, the Brisbane City Council expressed its intent to persevere with the innovative services, not least because tracking research had shown that much of the patronage attracted to Hail and Ride had not previously used buses. (Lunt, p 10)

Analysis

The Brisbane Hail and Ride services are a good example of how public transport can be adapted to better meet the differing needs of the communities they serve. Both services were well researched and promoted to potential users. They each delivered enhanced access, frequency and reliability to patrons while the operator reaped the benefits of greater efficiency and market share.

The Highgate Hill route, with its greater number of trip generators has attracted a higher level of patronage and therefore has been able to sustain a superior level of service in comparison with the New Farm route, with its older and more self contained demographics.

The main criticisms of the Hail and Ride are that altered frequencies and reduced hours of operation will, as in the case of the 'Nepean Nipper', act as a deterrent to patronage growth. The failure to develop greater linkages with rail services may also undermine the 'network effect' which Mees (2000) identified as an essential element of successful integrated public transport systems.

Evaluation

Useful lessons learned from the Brisbane model include the efficiencies derived from higher vehicle and staff productivity produce lower cost structures; a demonstration of the value of investing in market research and promotion in attracting strong patronage including some from competing modes; and that frequency, accessibility and affordability are fundamental to success.

While largely a local community based service, Hail and Ride is a good example of an innovative transit system which serves its niche market well. Some aspects of the service are, however probably less suited to the Canberra proposal - for example the hail a bus and set down anywhere feature may cause unacceptable delays on a service which sought to promote itself as swift, frequent and reliable.

5.3 PERTH - CENTRAL AREA TRANSIT (CAT)

The Central Area Transit (CAT) system is a free public transit mode serving commuters, shoppers and visitors to central Perth. Commencing in 1996, it comprises an east-west loop service - the Red CAT (between Outram Street in West Perth to Horatio Street in East Perth); and a north-south loop - the Blue CAT (from the Swan River to Northbridge). (see Figures 5.8)

Funded through the Commonwealth Government's *Better Cities Program*, in partnership with the State of Western Australia and Perth City Council, the CAT system aims to "enhance the movement of central city users and tourists within the Perth CBD and to demonstrate a balanced, sustainable, multi-modal transport system for the city that is high quality, frequent and user-friendly as a viable alternative to the car within the city." (National Capital Authority, 1997, p 202)

The CAT system, which cost in excess of $8.8 million to implement, involved the purchase of 16 new 'Midicity' vehicles, construction of new high-tech passenger shelters and a satellite-based tracking and information system.

These services, with their high frequencies, extent of operation, and well planned routes and stops represent a determined effort to reduce car usage and enhance mobility in the central city area by linking major transport, employment and tourist nodes in an integrated manner. CATs form an integral part of a Free Transport Zone which permits free use of all

public transport within a prescribed area based on the Perth CBD. (Mortimer & Hammond, 1996, p 250)

Review of operations

The service features 2 distinct routes, and each is free of charge. The first route, Blue CAT, commenced operations on 11 August 1996. The Red CAT commenced on 23 September 1996. Originally, a slightly truncated weekend route applied on Blue CAT services but the route was simplified in 1998 to become standard for 7 days a week. A recent innovation has been the introduction of limited weekend services on the formerly Monday to Friday only Red CAT route. Details of current services follow.

Blue CAT

Blue CAT operates Monday to Friday 6.50 am to 6.20 pm, running every 8 minutes; Friday nights 6.20 pm to 1.05 am, running every 15 minutes; Saturday 8.30am to 1.00 am every 15 minutes; Sunday 10am to 5.00 pm. This is a north/south service with 22 stops connecting Northbridge, Perth railway station, Wellington Street bus station, Bus Port (bus terminal) and Barrack Street jetty. (Figure 5.9) The services on Friday and Saturday evenings cater for the popular Northbridge restaurant and entertainment precinct.

Red CAT

Red Cat operates Monday to Friday 6.50 am to 6.20 pm running every 5 mins, and a recently introduced basic weekend service 10 am to 6.15 pm running every 45 minutes. This east/west service with 30 stops connects the WA cricket oval and nearby urban renewal area of East Perth with the west Perth office precinct via the central city and the main railway station.

Patronage

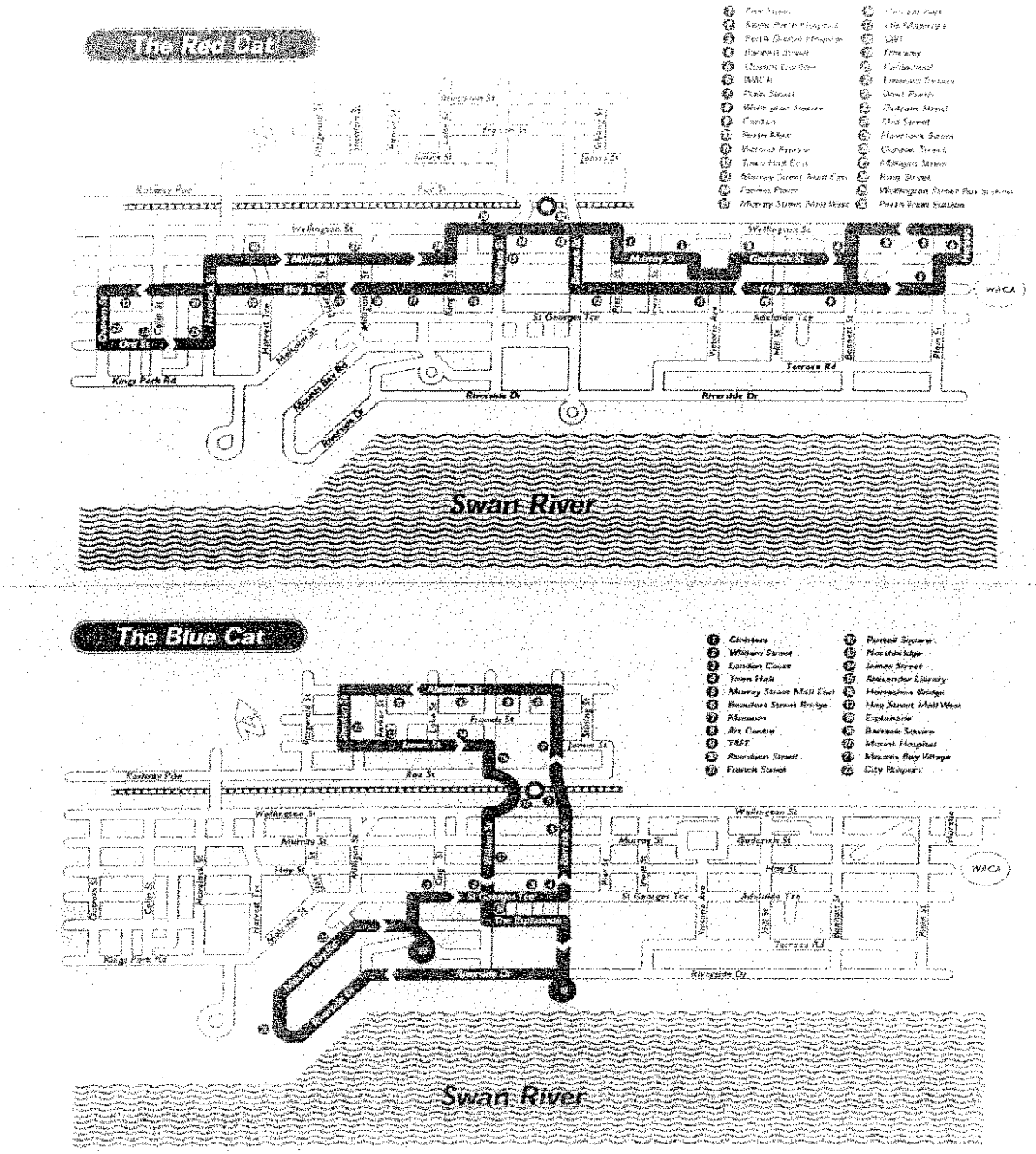
CATs has been instrumental in boosting patronage in the Perth Free Transit Zone.

Mortimer (2000) advises that prior to the implementation of the CATs, the five free City Clipper routes accounted for 1.37 million passengers in 1994 (ie 26,000 trips per week). By mid 1999, annual patronage on both Blue and Red CAT routes reached some 3.32 million (or almost 64,000 trips per week). The Red CAT is by far the busiest route. Of the total boardings in 1999, the then Monday to Friday only Red CAT service carried 2.4 million (46,000 trips per week) - over 70 per cent of the total.

Based on the Monday to Friday operations the Red CAT services have distinct peaks in boardings which coincide with morning and afternoon commuter trips and around the lunch period. The Blue CAT attracts more consistent use on weekdays - building up through the morning and then remaining reasonably uniform until about 4.00pm. On the weekends, when passenger numbers are lower, the Blue CAT attracts greater patronage in the afternoons (Weekend Red CAT not yet surveyed). The Friday and Saturday evening Blue CATs each have about 500 patrons, mostly before 11.00 pm. (Transperth, 1998)

Passenger attitude information collected in June 1998 identified the best and worst features of the CAT service. Passengers suggested that the most attractive elements were the free service (32 per cent); high frequency (23 per cent); regularity (13 per cent); convenience (9 per cent). Concerns included overcrowding (16 per cent); insufficient seats (12 per cent); buses too small (9 per cent); hours of operation too restricted (8 per cent); poor timekeeping (8 per cent). Interestingly, most adverse comments appear to be a direct result of the popularity of the service. (cited in Mortimer, 2000, p 29)

Figure 5.8 Perth CAT - Blue and Red Route Maps



Source: WA Department of Transport (2001)

Infrastructure

The 16 midicity buses were constructed by DAB (Dansk Automobil Bygerri) a Scania subsidiary in Silkenborg, Denmark at a cost of $6.6 million (or $410,000 each). They were selected ahead of other contenders because of their combination of features including excellent accessibility; low exhaust emissions and superior noise insulation.

The buses offer 'squat' suspension, which enables the whole bus to be lowered to kerb height (167cm) to facilitate easy access through both front and rear doors for wheelchairs (with on board accommodation for 3 wheelchair passengers); passengers with disabilities; prams, and young children. The vehicles are air conditioned with flat floors throughout. This overcomes the need for any steps, maximising available passenger and luggage

space and simplifying access. There are 15 fixed seats and 5 tip-up seats. With the latter folded up, there is room for 37 standing passengers.

Figure 5.9 Perth CAT - Blue Route bus at Barrack Square terminus

Source: Author (1996)

The bus engines offered a 50 per cent reduction in nitrous oxides (NOx) emissions; 50 per cent reduction in hydrocarbon (HC) emissions; and a 65 per cent reduction in carbon monoxide (CO) emissions compared with regular models. (NCA, 1997, p 203)

Bus stops

The distinctive, specially designed bus stands and shelters play an important role in promoting the CAT service. Each stop is clearly colour coded (red or blue) to indicate CAT route it serves; and is numbered and named. Stops also offer comprehensive information about the CAT service with a route map, hours of operation as well as the GPS-driven digital real time display showing waiting time for the next bus. Although sleek and minimalist in design, the shelters provide reasonable protection (given the short waiting times) from rain or sun, and many are equipped with seats and public telephones.

Global Positioning system

The CAT network uses global positioning system (GPS) technology to track buses on the streets of Perth and provide up to the minute arrival times - both visually displayed and audibly (by pressing a button) at each of the high-tech bus shelters. (Figure 5.10) The system is essentially a real-time electronic timetable that takes account of traffic congestion or other delays. It also permits drivers to be shown, via a mobile data terminal, where their bus is in relation to other buses ahead and behind, so they can make appropriate adjustments to maintain headways.

Passengers on board CAT buses also benefit from the GPS through real time visual reporting of the name of the next bus stop and the current time. Both on-board and bus-stop displays are backed by voice announcements which are generated remotely by the computer system. Drivers can also make announcements or play music over the bus PA system.

A back-up system using ultrasonic terminals and tags as buses pass bus stops helps to maintain bus positioning information flow should the link between the GPS and the satellite be interrupted.

Figure 5.10 Perth CAT - Red Route - Criterion stop (note route map and GPS-based display showing minutes to next bus)

Source: Author (1996)

Staffing

The CAT system commenced as a semi-autonomous business unit within the then public service provider (Metrobus) with a separate industrial agreement covering its operation. A five year employment contract was offered to the 30 CAT staff - an initial three year term followed by a two year extension subject to satisfactory performance.

Its drivers were recruited following a separate selection process with an emphasis on specialised customer service skills including proficiency in foreign languages. As a result, 9 of the total 27 drivers selected were bilingual. The remuneration package offered was lower than the award conditions offered to regular drivers as CAT operations offer the advantage of very fixed routes and rosters. (Mortimer & Hammond, 1996, p 250)

Following the outsourcing of Perth's metropolitan bus operations in 1998, the contract to provide CAT services was awarded to Southern Coast Transit which was subsequently taken over by UK-based National Express Group PLC. (Mortimer, 2000, p 27)

Costs

Annual running costs for the CAT system are $3 to 4 million. No revenue is collected from passengers - all travel is free. The costs of operation are almost entirely recovered through commercial and tenant car parking licence fees which are applied at the rate of $70 per space per annum in the Perth CBD, East Perth, West Perth and Northbridge. (Mortimer, 2000 p 29; WA Department of Transport, 1998, p 21)

Analysis

The CAT system has been an outstanding success in terms of attracting passengers to public transport. (Figure 5.11) It has been instrumental in increasing patronage in central Perth from 1.37 million trips in 1994 to 3.32 million in 1999.

The prime reasons for its success relate to:

- all aspects of the system - the service, the infrastructure, the passenger information systems and the management being carefully planned 'from the ground up', implemented, evaluated and improved.
- the use of technologies, although expensive, were well suited the task - with small, easy to manoeuvre vehicles and real-time passenger information systems at each stop;
- its excellent customer service focus with reliability, frequency, accessibility and friendliness;
- its distinctive identity - with stylish midibuses and high-tech bus stops;
- its route structure satisfies demand and it's free.

Most of the consumer criticisms relate to the effects of its success - ie some overcrowding and insufficient seating. It is also valid to suggest that with such a high level of capital investment in the infrastructure, greater productivity could be achieved by extending the hours of operation or using the buses on other tasks such as weekends when Red CATs are effectively idle in the depot.

Figure 5.11 Perth CAT - Red Route - Forrest Place stop (note double door operation for fast loading and unloading)

Source: Transit Australia (Feb 2000) p 27

Demand for the CATs services warrants investment in additional vehicles, but the WA State Government is unlikely to significantly build the fleet unless it can source the funding from outside its budget. There has been however, some supplementation of the service during peak periods using large, standard buses. The revenue which supports the *operation* of the service (from commercial car parking licence fees) is unlikely to be sufficient to fund *capital* improvements unless the fees rise significantly.

Evaluation

CATs is probably the best model in Australia of satisfying mass demand and growing the market for inner city transit. It is so good it has become a tourist attraction in its own right! It must be acknowledged, however, that CATs is the 'rolls royce' in terms of transit systems and, due to its huge capital costs, is unlikely to be duplicated anywhere in Australia under current funding constraints.

That said, it is an ideal demonstration model for public transport and completely adaptable to other cities, even in a simpler form without the costly technologies used. Expensive imported buses and elaborate GIS systems, while attractive and forming great marketing tools are not essential to establish a quality transit system. It is noteworthy that Fremantle, has successfully introduced a similar CAT system - using standard buses, no GPS and simple but clearly identified bus shelters. (Transit Australia, 2000, p 266)

The essential features which have contributed to CATs success are frequency, reliability, accessibility and affordability. The 'bells and whistles' of super sleek design and high tech are simply optional extras. Other attractive features of CATs include the commitment to customer service through an innovative staff selection system and its role as an integrated part of Perth's transit network (feeding and linking the rail, bus and ferry services). With simple modification, CATs could be easily adapted to the serve the needs of central Canberra.

5.4 SYDNEY - SYDNEY EXPLORER, BONDI EXPLORER AND OLYMPIC EXPLORER

Review of operations

<u>The Sydney Explorer/ Bondi Explorer</u>

The Sydney Explorer (Figure 5.12) is a long established dedicated tourist service which operates a 90 minute, 29 kilometre circuit taking in 25 of Sydney's major attractions. Buses commence daily from Circular Quay from 8.40 am and operate every 18 minutes until 5.22 pm. The tour provides a brochure guide and there is an on-board recorded audio commentary. (Sydney Buses, 2000) The Sydney Explorer uses 49 seat coach grade buses with single entry door. Buses and bus stops are marked in the distinctive red Sydney Explorer livery.

The Bondi Explorer (Figure 5.13), also operated by Sydney Buses, offers a 2 hour, 30 kilometre circuit from the CBD to Sydney's eastern suburbs via the harbour and beaches. Buses operate a 30 minute frequency from 9.15 am to 4.15 pm daily with features and infrastructure similar to the Sydney Explorer. (Sydney Buses, 2000)

As the buses are dedicated to the Explorer services, there is no flexibility to use them on route services when required. Compared to the smaller vehicles used on the other transit services reviewed, particularly the Perth CAT, the Explorer is relatively slow and cumbersome to manoeuvre through Sydney streets. The reliability of the Explorer is regularly affected by traffic congestion.

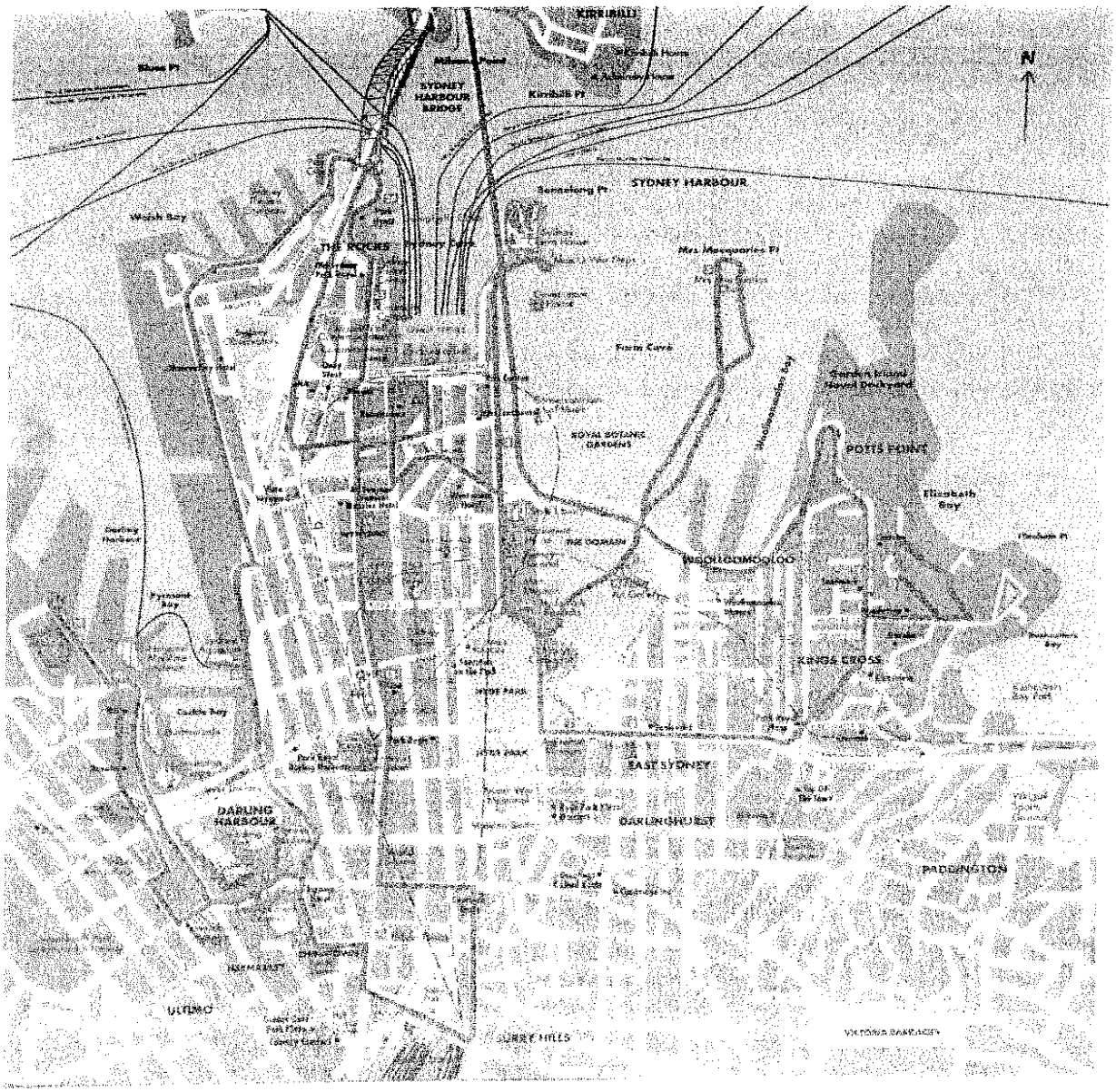
Tickets, which are valid all day and permit passengers to hop on and off to inspect the attractions en route cost $30 for adults, $15 concession and $75 for a family. The ticket also entitles passengers to free travel on any regular Sydney bus within the central city area until midnight on the day of issue. (Sydney Buses, 2000)

A two day 'Twin Ticket' is also available which permits unlimited travel on both the Sydney Explorer and the Bondi Explorer (also operated by Sydney Buses) over any two days within a 7 day period.

The Explorers' ticket price and inflexibility of the ticket (valid only for the day of issue) makes it a relatively expensive proposition, even for the tourist market.

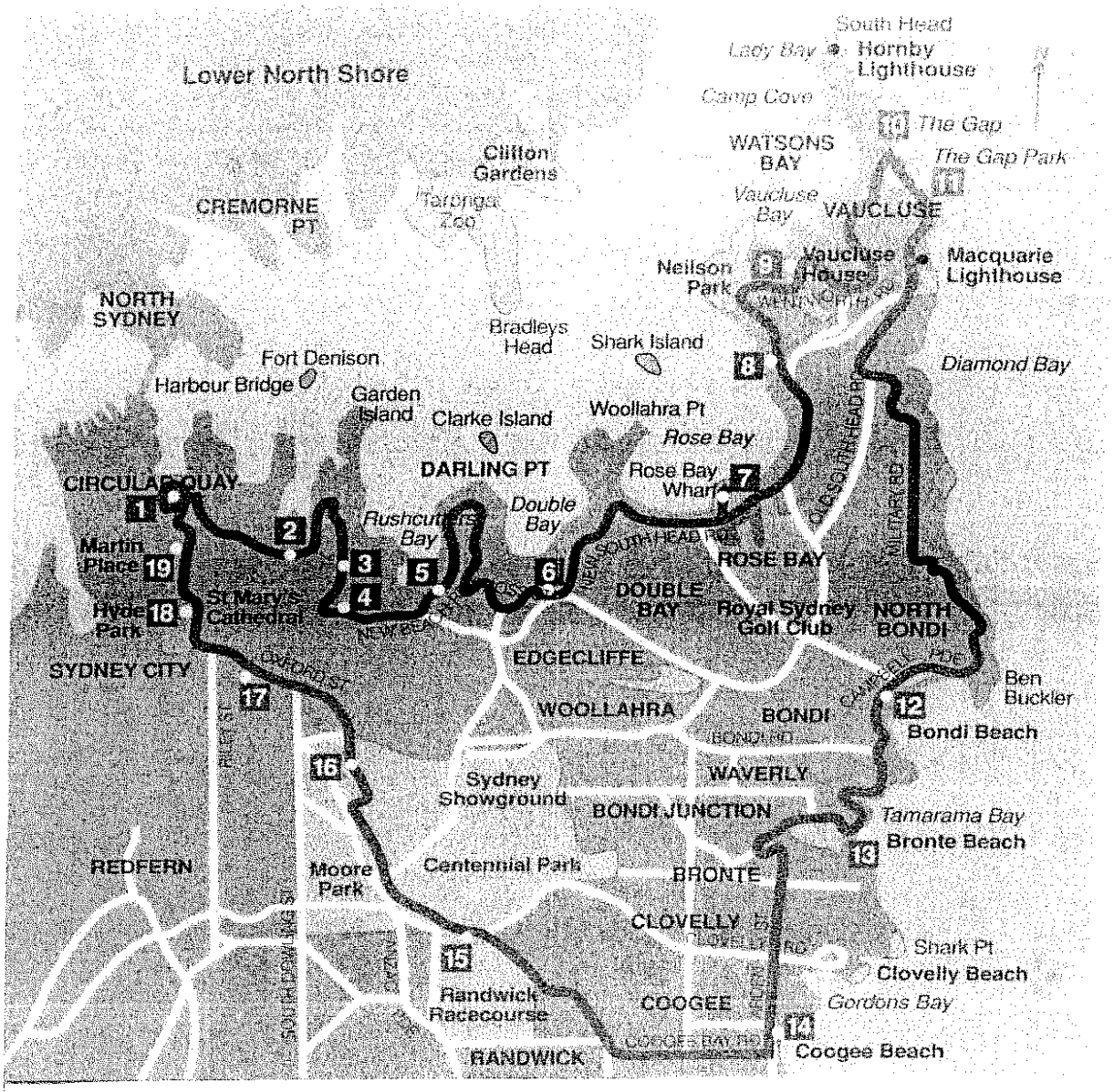
In many ways the Sydney and Bondi Explorers are similar to the former Canberra Explorer, (and the new double decker service offered by City Sightseeing Pty Ltd) in terms of their expense and lengthy circuit.

Figure 5.12 Sydney Explorer – Route Map



Source: Sydney Buses (2000)

Figure 5.13 Bondi explorer – Route Map



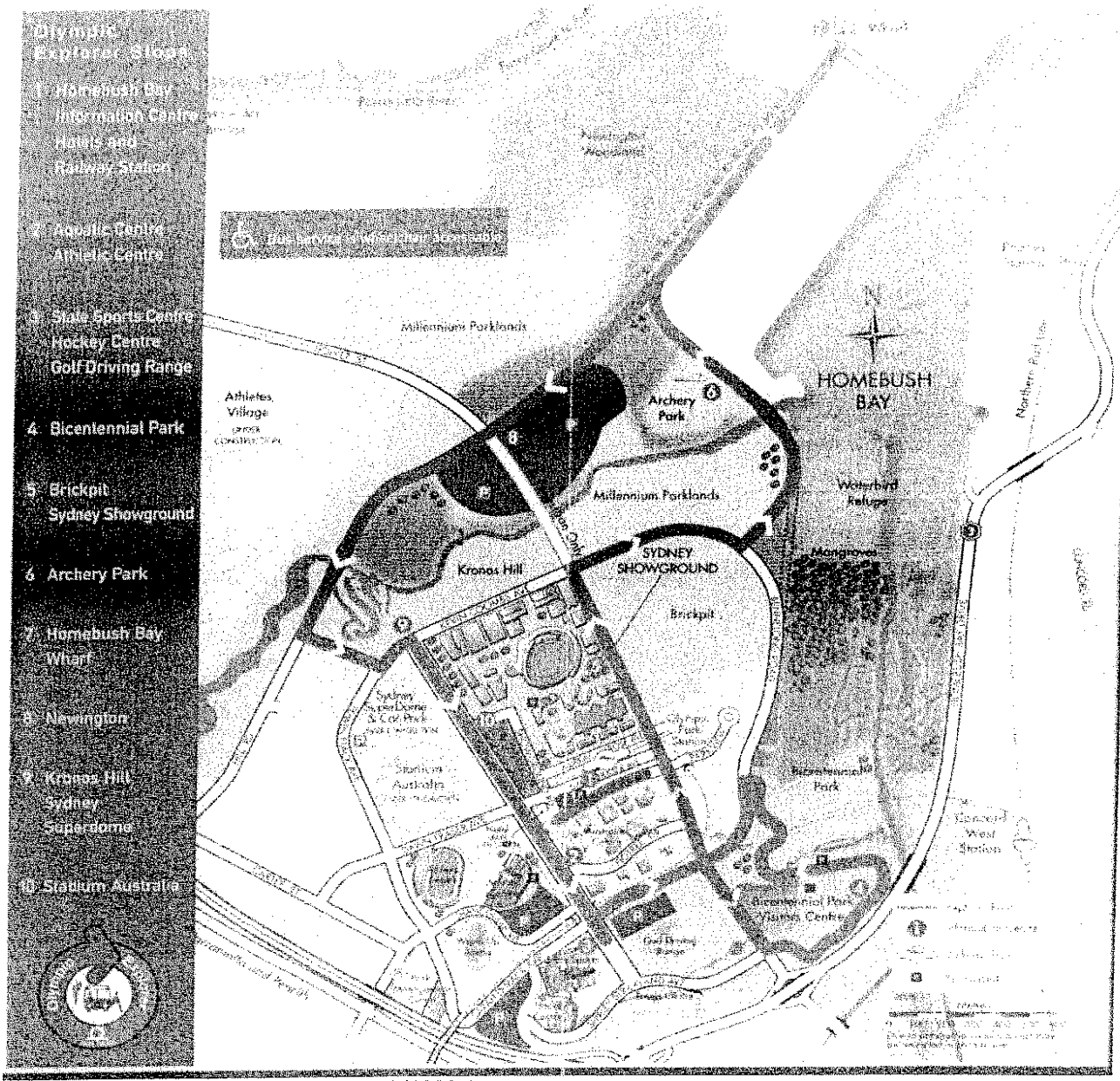
Source: Sydney Buses (2000)

The Olympic Explorer

The Olympic Explorer service (Route 405) is the latest innovation offered by the Sydney Buses division of State Transit to serve the leisure market. It commenced operation during 1998-99 in the lead up to the Sydney Olympic Games to allow visitors an opportunity to inspect the sporting facilities being developed at the Homebush Bay site. (State Transit Authority of NSW, 1999b, p 14)

The Olympic Explorer operates a 10 stop circuit, with on-board recorded commentary, commencing at Olympic Park railway station with stops including Bicentennial Park, Sydney Showground and the Homebush Bay Wharf. (see Figure 5.14) The service operates every 10 to 15 minutes between 9.20 am and 5.00 pm daily.

Figure 5.14 Olympic Explorer - Route Map



Source: State Transit Authority of NSW (1999c)

Unlike the Sydney Explorer, the buses used on the Olympic Explorer are sourced from the regular State Transit operating fleet (but tend to utilise the more recent, state of the art acquisitions) and therefore may be used for normal route services when not required at Homebush.

Tickets cost $10 for adults and $5 concession and are valid all day allowing holders to hop on and off the bus to inspect the sporting attractions at each stop. Ticket holders are also entitled to discounts at some venues. (Sydney Buses, 2000)

The Olympic Explorer operates a self contained circuit wholly within the Olympic precinct. It may be accessed via a direct rail service; buses linking Strathfield and Lidcombe stations; as well as the Rivercat service along the Parramatta River. Sydney Buses promotes use of the latter through its Olympic Rivercat ticket package which offers return ferry travel from Circular Quay to the Homebush Bay Wharf and all day travel on the Olympic Explorer bus for $19.20 per adult and $9.60 concession. (Sydney Buses, 2000)

Analysis/Evaluation

The Sydney, Bondi and Olympic Explorer services operate very successfully as defined circuit tourist services. Their specific purpose and extensive operational experience enable them to provide a good service for visitors . Both are backed by the significant resources of State Transit - one of the largest bus operators in Australia. Explorer services can also draw on State Transit's large pool of well trained staff to operate the services.

Perhaps one of the most important reasons for the success of the Explorer services is its marketing. The Sydney Explorer in particular, with its distinctive red branding, is a Sydney icon with enormous 'brand' value. Every bus and bus stop is a highly recognisable advertisement for the service. It's promotion and distribution network is very sophisticated, particularly in respect to the international tourist market. Many tickets are pre-sold in holiday packages; while its promotional literature is very prominent at the airport, on airport buses, and throughout hotels in Sydney.

The modern, high capacity buses can cater well for large volumes of visitors. While the Sydney and Bondi Explorers are disadvantaged by a vehicle configuration which excludes its use for commuter operations, the Olympic Explorer is not constrained in that regard. Both Explorer operations may, however, be disadvantaged by not having access to smaller equipment when demand is low.

While tickets for the Sydney and Bondi Explorers may be pre-purchased before boarding, the Olympic Explorer advertises that its tickets may only be purchased on board - which may cause delays at times of peak demand.

In terms of application to Canberra, both services would have appeal to the visitor market although the issue of affordability and value for money would be a major factor - especially for families and groups with access to private vehicles which may be easily parked at no cost in Canberra. It should also be recognised that the size of the visitor market in Sydney is significantly larger and therefore better able to sustain such a venture.

5.5 CANBERRA TRIALS

Old Parliament House to Parliament House Shuttle (September to December 1999)

As an experiment to try to attract a greater proportion of Parliament House's 1 million visitors annually to also visit Old Parliament House, a free shuttle bus between the two attractions was trialed during the latter part of 1999. (see Figure 5.15)

The trial, which took place over a four month period from 6 September to 24 December 1999, was awarded to ACTION at a cost of $14,550 following a competitive tendering process. ACTION used a single older style 21 seater Toyota Coaster bus (with disabled access) with driver to operate the service.

Services were operated between 10.30 am and 2.30 pm over 7 days a week and linked the two attractions directly via Federation Mall.

The service attracted some initial publicity when it was launched by the President of the Senate and Senator for the ACT, the Hon Margaret Reid. Although patronage was higher in the weeks coinciding with the annual influx of Floriade visitors over September-October, usage remained relatively modest throughout the trial. The heaviest patronage was recorded during the week commencing 27 September 1999 with 759 boardings - equating to an average load of less than 7 people for each of the 119 round trips operated. Most weeks, however, recorded average loads of less than two people per round trip. (Old Parliament House, 2000)

Figure 5.15 Old Parliament House to Parliament House trial shuttle bus

Source: Author (1999)

Based on estimated annualised costs of around $45,000, the trial was discontinued on the basis that the patronage was considered insufficient to warrant its continuing operation.

In analysing the results of the trial, Old Parliament House was disappointed that the trial generated more traffic heading away from Old Parliament House when the key objective was to encourage the reverse. Although the reason for this directional bias is unclear, many of the patrons may have parked their car at Parliament House and walked downhill to visit Old Parliament House and then chosen to ride the bus back to avoid the uphill walk back again.

The overall poor patronage can probably be related to a number key failings:

- the failure to promote the service to tourists and residents;
- the very short circuit made it hardly worthwhile to use the shuttle;
- the lack of clear signage or other information at both termini advising patrons of the existence of the shuttle bus and its route;
- the bus itself lacked appropriate identity - it carried minimal signage to convey clear destinational information;
- the four hours of daily operation was insufficient to attract a larger ridership;
- the lack of survey or other means to collect data from patrons during the trial makes further qualitative analysis of the trial results difficult.

Regatta Point Shuttle - Australia Day 2000

During the annual 'Discover Your National Capital' promotion, which is a collaborative venture between the major attractions, a free shuttle bus linking the National Capital Exhibition at Regatta Point to the attractions of the Parliamentary Zone and the War Memorial was trialed, along with a ferry service across the Lake. These services, along with many other special events and activities organised for Australia Day were well publicised in the Canberra Times newspaper together with sandwich board displays at the National Capital Exhibition.

The shuttle, utilising chartered ACTION buses operated on Australia Day 2000. (Figure 5.16) A 30 minute frequency was offered commencing at 12 noon until 4 pm. An on-board commentary and guide service was also provided to enhance the visitor experience.

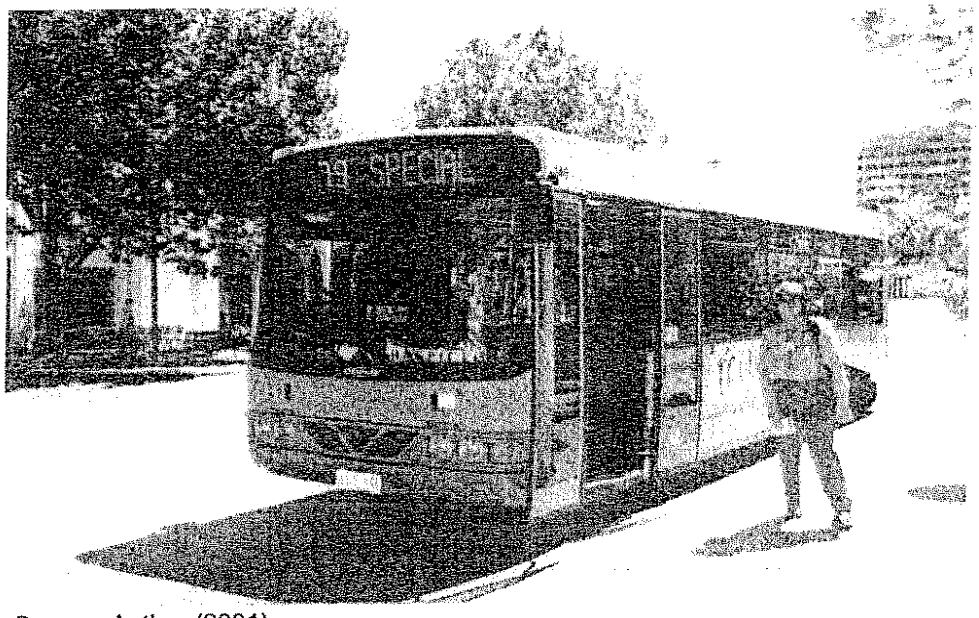
The shuttle route took in the National Capital Exhibition (Regatta Point); National Library; National Science & Technology Centre; Parkes Place Jetty; National Gallery; Old Parliament House, Parliament House; National Archives of Australia; ANZAC Parade; Australian War Memorial and return to Regatta Point. Interestingly, the route taken was very similar to that operated by the defunct ACTION Sightseeing Service Route 901.

The service was reportedly highly successful with many buses departing with capacity loadings. The total number of passengers carried for the four and half hours of operation was 720, which equates to an average of 80 people per complete circuit, an extremely satisfying result.

The free shuttle was complemented by a free ferry service operating across the Lake between Regatta Point and the National Library jetty. According to organisers, this service was also very popular and carried about 600 people between 12.15 pm and 4.40 pm.

Even with such a short trial the level of patronage clearly indicates that the provision of such a service can be justified. Some of the key reasons it was successful were that it satisfied a demand; was well promoted; offered a high level of service (good, easily remembered 30 minute frequency; well integrated with the ferry service; used easily identified and suitably sized buses; provided plenty of easily accessed information and friendly staff were on hand to assist with queries); and it was free (no ticketing complications).

Figure 5.16 ACTION Midibus – type used successfully for Regatta Point Shuttle



Source: Author (2001)