PARKING AND ACCESS ISSUES
IN TRANSIT ORIENTED DEVELOPMENTS
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Abstract

The objective of this paper is to examine the planning issues relating to parking and access around transit nodes. It reviews Perth’s current strategy of providing park-and-ride-facilities and promoting transit oriented developments. The paper is based on review of planning documents, site visits and interviews with planners from the local council and Public Transit Authority in Perth. Using a case study of suburban railway station in Murdoch, the paper identifies a number of planning challenges such as congestion in park-and-ride facilities, spill-over parking in surrounding neighbourhoods, poor access by walking and cycling, and public safety concerns. The paper discusses ways to improve the situation by prioritising access to transit nodes through various means of transport (walking, cycling, buses) rather than just focussing on provision of more car parking spaces. Other measures include discouraging free park-and-ride facilities, provision of reliable, frequent feeder bus services and preparation of an integrated local transport plan for the area around transit nodes.
PARKING AND ACCESS ISSUES IN TRANSIT ORIENTED DEVELOPMENTS

Introduction

There is growing literature on the principles and practices of transit oriented developments (Dittmar and Ohland 2004; Dunphy et al. 2004; Curtis et al. 2009; Newman; 2005; Cervero, 1998; Calthorpe and Fulton, 2001; Bajracharya and Khan 2006). Transit oriented development (TOD) has been proposed as part of urban growth management in a number of cities around the world. The proponents of TODs see many benefits such as integration of land use and transport and their contribution in building vibrant and sustainable communities. However, there are a number of planning issues with development of TODs particularly in relation to parking and access (Shoup, 2005; Litman, 2006, Cervero, 2004; Jakle and Sculle, 2005; Willson, 2005). The paper will look into these issues in the context of Perth metropolitan area.

Car parking provision at transit nodes such as train stations is a difficult as well as a sensitive topic. Firstly, it is a difficult topic because there are no hard and fast rules that could be applied to quantify car parking capacity requirements at each station. Secondly, the topic is sensitive because despite the recent move towards public transport, Perth residents have long entrenched traditions of a car-based lifestyle. The key agencies responsible for operating the train system appear concerned that riders would refuse to use the system were they not allowed free parking at the stations.

As a result, in locations where vacant land is plentiful, train stations tend to provide large car parking facilities. In order to attract the desired number of passengers on to the trains, the agencies often seek to ensure sufficient numbers of car parking spaces
available at the train stations. The problem with this approach is that the very purpose of TOD promotion as envisioned in Network City, the strategic plan for Perth, is compromised. Liveable Neighbourhoods, a planning guide supplementing Network City, specifically promotes the integration of transport and land use and the accessibility of public transport facilities by a range of modes of travel (WAPC, 1997; WAPC. 2006; Curtis 2006). Liveable Neighbourhoods promotes the concept of mapping ‘pedsheds’ whereby residents have access to public transport nodes within ten-minute walking distance. Despite this, the emphasis in designing train stations seems to have been aimed at securing patronage for a certain mode of public transport – the car – over all other modes, rather than focusing on promoting a less car-reliant culture through reduced travel demand and increased public transport usage as promoted in strategic planning.

With this situation in mind, the objective of the paper is to examine the parking and access issues around existing train stations and proposed TODs. It will first review the broad literature relating to TODs and car parking to understand the key debates relating to planning for access and parking around TODs. Secondly, it will critically examine Perth’s current strategy of increasing the patronage of train system by providing park-and-ride facilities as well as discuss its “network city” metropolitan strategy to promote TODs. This provides the context for a detailed case study of a suburban rail station of Murdoch with park-and-ride facilities. Using the case study, the paper will examine planning challenges of access and parking in TODs in Perth and discuss some potential options to address these issues. The research is based on the review of international and national literature on TODs, analysis of government planning documents as well as site visits and interviews with a strategic planner in the
relevant local council and two Public Transit Authority (PTA) officials in Perth. The paper will also discuss ways to improve access and parking around TODs and draw policy implications from the study.

**Literature review: Challenges of parking and access**

**Problems presented by parking**

Cervero (2004) identifies parking problems affecting in the creation of viable TODs.

> In and around transit stations, parking is a double-edged sword. On the one hand, it is absolutely essential for drawing customers to transit in low-density settings where feeder bus is sparse. On the other hand, parking lots can form huge obstacles to the creation of viable and attractive TODs. (pp. 55-56)

While pointing to the potential negative impact that parking provision can have on the integration of the transit system with the surroundings, Cervero observes that “parking separates the transit system from the adjacent community” and that “parking creates a station-area milieu that is distinctly automobile- rather than pedestrian-oriented”. (2004, p.56) These are issues that relate to the design of TODs and their access. As Calthorpe (1993) observed, it is the people who can walk to the station rather than those who would need to drive to it that are more likely to use the transit system.

Cervero also explains how parking can negatively affect the realisation of the development potential of land around the stations into TODs. He notes that “parking demands lead to stations being sited in marginal settings that are not conducive to TOD” and that “regulatory requirements on replacement parking severely limit the possibility of converting commuter spaces into TOD”. (2004, p.56)
Problems with surface park-and-ride facilities

Park-and-ride facilities are often provided in the form of large surface area parking for cost savings. Expansive surface area parking negatively impacts the environment in many ways. Firstly, it prevents the penetration of water into the soil, causing large surface water runoffs, thereby changing the hydrology of the area. Secondly, the large impervious surfaces serve as collectors of pollutants such as oil drips, for example, from the many cars parked for long hours. These pollutants are then carried into the water streams by the stormwater run-offs. Thirdly, surface area parking also increases albedo effect and contributes to increased radiation and heat in summers. The intensity of the increase, of course, depends upon the material used.

Surface area parking often also lowers the safety of users. In an effort to maximise parking bays, the pedestrian circulation within and across the car park commonly receives a lower priority. Often, the only or the predominant entry into the station from surrounding neighbourhoods is through the car parking area and therefore the design of the approach to the station is more car- than pedestrian-oriented. Larger sized surface parking can potentially cause greater safety concerns for users as longer distances between car parking bays and the station entrance increase exposure of pedestrians alighting from their cars to other cars searching for parking bays.

Costs of free parking

Shoup (2005) makes the important point that free parking isn’t really free. This price is eventually transferred from the developers to their customers and tenants and diffused into the economy. Shoup (2005) blames the subsidies that allow free parking for distorting transportation choices that we make. He thus argues for charging fair
market prices for on-street parking within neighbourhoods, using the revenues thus raised to pay for improved services in that area. Likewise, Willson (2005) rightly argues that “many existing regulations and building practices have the effect of creating a self-fulfilling prophecy – high parking requirements mean low or zero parking prices which undermine the realisation of full transit or TOD benefits.” (Willson 2005 p. 89)

Spill-over parking into neighbourhoods
Spill-over parking from a train station to surrounding areas is possible if parking is free and easily available there. Attempts to manage spill-over usually involve restrictions through regulations. “A common policy for preventing parking spill-over into residential areas is to implement residential parking permit programs, but these have drawbacks.” (p. 17) Where this is tried, it is common to issue parking permits to local residents either for free or for a very small fee, while anyone else is prohibited from parking there. This does not necessarily constitute an efficient use of off-street parking capacity. According to Littman, however, “this can leave many spaces unused during the day when nearby businesses could use extra parking, and neighbourhoods could certainly use the revenue that could be generated by charging for street parking.” (p.33)

Willson (2005) describes the concept of “parking benefits districts” that benefit from the revenues that could be collected by allowing the marketing of car parking space in the form of on-street parking. The income could off-set administrative costs and fund transport or neighbourhood improvements, for example, in the shape of street and sidewalk cleaning, putting in quality street furniture, street lighting, security elements
or other amenities. “Earmarking revenue to directly benefit the neighbourhood or commercial district helps to generate support for charges from local residents and businesses, who might otherwise resist paying for parking that used to be free.” (p.33)

Calthorpe (1993) highlighted the concerns about park and ride provisions at TOD stations, observing that a higher percentage of people were likely to use transit if they could walk to the station, rather than get into their cars to drive to a park-and-ride facility. A federally funded national best practices clearing house in the USA recently prepared a toolkit for designing transit oriented development in line with Calthorpe’s thinking. The toolkit recommends that while designing streets in close proximity to transit, priority should be given to models other than the automobile wherever possible (Reconnecting America, 2008).

According to EPA (2006), there are a number of benefits that could be derived from restricting the allowed number of parking spaces in an area. They:

- improve the urban environment by preserving open space and limiting impervious surfaces;
- encourage attractive, pedestrian-friendly urban design; and
- minimise costs for parking construction, operations, and maintenance.

This review of literature provides a useful context to discuss the issues of park-and-ride and transit oriented development initiatives in Perth.

**Relying on park-and-ride facilities to guarantee train patronage**
In introducing mass transit to Perth, the transport authorities in the 1990’s were mindful of the city’s very low urban density and high car ownership rates that had led to an entrenched car culture and a general disregard for public transport. Martinovic (2008) reports that the Department of Transport’s Rapid Transit Review (1994) undertaken for the Mandurah to Fremantle railway link suggested that while walking should be the dominant access to public transport, park-and-ride facilities were required for access beyond the one-kilometre walking range. The potential optimal patronage within a station precinct was estimated based on a catchment area for park-and-ride of 15 km$^2$.

According to Martinovic (2008), 91 per cent of a station patronage comes from outside the walking catchment of a kilometre radius and park-and-ride accommodates 28 per cent of this patronage. The PTA has therefore assumed the logic that in the absence of high urban density areas where the railway could be extended to, the riders from low density areas had to be brought to the stations. In view of the fact that most commuters reside beyond the walking range and have access to private transport, the size of train station catchments were increased further from 15 km$^2$ to up to 40 km$^2$ for the required patronage to be generated. The location of train stations was accordingly fixed at longer intervals (of 3 km) and the larger catchments meant that motorised modal access had to be facilitated. From a train service operator point of view, this meant greater efficiency and utilisation of the rolling stock.

This approach, however, lacks consideration of other options to improve feeder bus link from neighbourhoods up to the bus transit station. It also removes from consideration any creative solutions towards improving or facilitating access of
residents of surrounding areas to the station using other modes of transport such as walking and cycling. Rather than attempting to promote a change of behaviour, this approach to the issue reflects the traditional ‘predict and provide’ model which serves as a self-fulfilling prophecy and one that has resulted in Perth’s current auto-dependent urban sprawl.

Martinovic (2008) also attempts to justify park-and-ride provision along benefit-cost lines. He refers to the cost of park-and-ride option in dollar expenditure terms, claiming that it is an economically efficient option as it costs less than 2 per cent of the total project expenditure but delivers 50 per cent of the patronage. A number of issues can be raised with this line of thinking. Firstly, it only takes into consideration monetary costs while ignoring environmental costs such as impacts on the locality’s hydrology and surface water runoffs. Secondly, it is not clear if the calculation includes on-going maintenance costs. Even the dollar costs in all probability refer to the cost of providing paved area parking which is the norm in Perth. The real price would be very different if the market value of the cost of the land was also included into the calculation. Being originally Crown land this may not have cost the agency, but it still amounts to high opportunity costs. This point assumes added significance if one views the conversion of large tracks of land around the stations along the recent Mandurah-Joondalup line as a form of land banking by government transport agencies.

From its inception, the Mandurah-Joondalup line seems to have been thought of as one that would mainly be auto- rather than pedestrian-oriented. Train stations, accordingly, have been thought of as having park-and-ride facilities as a compulsory
element. There is a concern, therefore, that this legacy will also affect the creation of TODs on station area parking sites.

**Perth’s Network City: Making TODs work**

‘Network City’ is “the endorsed metropolitan strategy” (WAPC 2007) for Perth that came out of a massive scale community consultation forum “Dialogue with the City” held in September 2003. It promotes the development of activity centres, activity corridors and transit-oriented development (WAPC, 2009, p.31). One of its three priority strategies is to “foster land use and transport integration”. Network City strategy looks at ways to manage population growth in Perth over the next 30 years, and aims to increase employment and other activities at local and regional centres that are linked to key public transport services. Part of the initiative is to promote TOD.

In line with the Network City, the State government of Western Australia successfully developed robust governance mechanisms that brought together various state agencies and authorities to facilitate the delivery of TOD (Khan and Bajracharya, 2007). It also initiated supportive programs such as TravelSmart that has been remarkably effective in ensuring the popularity of the train service (Khan, 2007). This is understandable, in view of the fact that Perth lifestyle had for too long been heavily car-dependent.

The willingness to put in place these measures has contributed to the successful delivery of the Mandurah-Joondalup train line. There were high approval ratings of the railway project within the community during its implementation stages. Upon
commencement, the train service has enjoyed good levels of patronage as percentage of the service’s capacity (Martinovic 2008; Curtis, 2006).

In Perth the recent seventy kilometre Mandurah-Joondalup line has been put in place in retrospect with reference to the city’s settlement pattern. The train line runs mostly on Kwinana Freeway’s median strip from Cockburn all the way north up to Joondalup (see Figure 1). Train stations have been created on the median strip of the freeway itself, where the freeway intersects major arterial roads. This essentially means that development has not generally grown around stations, nor have local bus stops within residential localities or commercial centres consolidated over time, to house train stations. As a result, there is essentially a disconnection between the surrounding development and train stations.

Outside the Perth CBD, plenty of vacant Crown land was usually available at sites chosen for stations. Acquisition of expansive tracts of public vacant land facilitated the creation of stations and provision of supporting facilities such as access ramps while leaving plenty of car parking space.

It is natural for the public agency directly concerned with the successful operation of the train service, the Public Transport Authority (PTA), to be keen to deliver high levels of patronage. In the process, it is quite possible that any measure that could potentially cause community patronage of the train service to drop would be carefully avoided. In a heavily car dependent city such as Perth, it seems two opposite approaches were tried at once: TravelSmart gave away gifts and other enticements to people to get them out of their cars and use other, more sustainable, modes of
transport; in contrast the PTA was reluctant to dissuade potential patrons of the train service from driving up to the station. This could perhaps lie at the heart of the park-and-ride issue faced in Perth.

In effect, therefore, Perth has an efficient train service on the Mandurah-Joondalup line running at sufficient capacity. However, it is not clear if the rail infrastructure is also effective in achieving the aims of the urban strategy of integrating transport and land use. This alludes to the classic efficiency versus effectiveness dilemma in planning.

**Case study – Murdoch Station**

Murdoch station is situated on the Mandurah-Joondalup line and it had been established as a bus transfer station before the train service was introduced. The bus transfer station stood in isolation at the intersection of the Kwinana Freeway and the South Street arterial road as there was no development around it except for the Murdoch University and a hospital nearby. The residential neighbourhoods in proximity to the transit station have remained unchanged as low density residential (see Figures 2 and 3 for location and aerial photographs of the Murdoch station). Built around an already established bus transfer station, Murdoch station has always had extensive feeder bus services in place. Not surprisingly, this makes the station the one with the highest rate of passengers arriving at the station by bus. Car parking issues still figure as a major concern.

In June 2007, the State Government released the final Murdoch Activity Centre (MAC) Structure Plan to develop a TOD in the area bounded by Farrington Road,
South Street, Kwinana Freeway, and Murdoch Drive and the Murdoch University campus in Murdoch (Department of Planning and Infrastructure, 2008). The Structure Plan will guide the future development of the TOD precinct so as to facilitate the Department of Health in developing the Fiona Stanley Hospital and related health facilities (PTA interview). It has identified a mixed-use residential and commercial precinct adjacent to the Murdoch rail station, using some of the land currently used for park-and-ride facility.

The key players in this initiative are the Department of Health and Department of Planning (formerly Department of Planning and Infrastructure - DPI) with input from a broad range of government and private stakeholders including Main Roads and PTA. LandCorp, the corporate arm of DPI is charged with facilitating the release of development opportunities within the mixed-use residential and commercial precinct. The City of Melville largely plays the role of providing the community a voice (Melville Planner interview). The Murdoch Activity Centre has been pushed mainly by the Department of Health’s plan to set up the Fiona Stanley Hospital – a major medical facility. (PTA interview)

Surrounded by plentiful Crown land, a significant amount of land around Murdoch train station had earlier been transferred to Road Reserve due to the configuration of freeway ramps. Now the ramps are being relocated to facilitate the design of MAC and in effect more developable land is being created. It is interesting to note that land originally acquired by a government agency for transport infrastructure (a public good) being used for another purpose could have led to legal complications - had the land been compulsorily purchased from private owners, as has been reported in cases
from USA. Because it was Crown land to start with – there are no individual ex-
owners and so the issue is avoided (PTA interview).

Although Murdoch Station was built near an existing bus transfer station, it has
always been a park-and-ride station. This may be seen as a lost opportunity to design
a station without extensive park-and-ride, relying instead on kiss-and-ride (drop-off)
facilities to augment patronage from bus transfers. The proposed MAC development
is likely to change the dynamics of the station and perhaps dismiss the need for further
expansion of park-and-ride facilities. The addition of the proposed Fiona Stanley
Hospital and university campus will transform it into an important destination place in
addition to being place of origin for local residents of the proposed TOD and
surrounding areas catching the train to Perth (Melville planner interview).

**Parking and access issues at Murdoch Station**

*Congested and chaotic parking*

From personal observation and from reports in the local media, car parks at Murdoch
and neighbouring stations are overflowing on weekdays. Cars can be seen
dangerously and illegally parked on a daily basis in the park-and-ride facilities.
Murdoch train station parking is full by 8.30 am and it is difficult to find a single
parking space even in the afternoon. A newspaper article reported “cars parked on
verges, road sides, embankments and under signs indicating cars should not park
there” (West Australian, May 22, 2009). A trip to the station car park on any working
day shows the chaos of dangerously parked cars often encroaching the carriage way as
well as the pavement.
An interesting fact pointed out (PTA interview) is the anecdotal evidence that some Murdoch University students use the station parking because of price differential rather than their campus located around 500 metres away. While most of the station car park bays allow free parking, a portion of paid secure parking is capped at $2 per day as per PTA’s policy. This provides a significantly cheaper alternative to parking on campus where the university charges around $5 per day for parking.

**Spill-over parking into neighbourhoods**

Spill-over of parking from a train station into residential area streets seems to be a major concern that authorities do not seem to have addressed adequately. These concerns are often voiced by residents of neighbouring areas.

In Murdoch, residential areas surrounding the station are subjected to special restrictions with respect to on-street or kerb parking. Signs are posted that restrict cars being parked on the streets between 8.30 am to 2.30 pm on weekdays in order to prevent spill-over parking by commuters using the train station and perhaps also the university campus. The utility of this restriction is questionable. While it is apparently intended to appease the local residents concerns that commuters may park in front of their houses, it also causes inconvenience to the residents themselves. Neither the residents nor their guests can park on-street. Due to high car ownership rates in the area, with 61 per cent of households owning two or more cars and 23.5 per cent households having three or more cars, the residents are also significantly inconvenienced, being deprived of off-street parking. Cars are often seen parked on driveways outside the garages as well as on well-cared for front lawns.
Station access

The root cause of issues with access to the station stems from two reasons related to the way the train line and station were installed. As discussed earlier, it was put in retrospectively and so there remains the disconnection between the station and surrounding developments. The other reason relates to the fact that on Mandurah-Joondalup line, train stations for the most part are essentially located within the median strip of the freeway, and at points of intersection with major arterial roads (see Figure 2). By default, these stations are physically cut off from surroundings on all sides by high volume, high speed multi-lane highways and/or freeway ramps. The station car parks have been placed within the road reserve inside the area defined by freeway ramps around the intersection. While this presents an inherent design problem, there aren’t any serious attempts to resolve it on record. This could be explained to a large extent perhaps by the fact that trains receive adequate patronage without engaging with residents of the surrounding neighbourhoods.

The buffering of the station by traffic lanes tends to reduce the utility of the ‘pedshed’ around train stations in two ways. Firstly, the traffic lanes and ramps add to the area occupied by large tracks of surface area park-and-ride facilities that eat up a large proportion of the potentially habitable area within the pedshed itself. In the case of Murdoch station, for example, the closest residential development lies well outside a 200 metre radius from the station. Secondly, it makes it more convenient and safer for residents from within the pedshed to drive up to the station rather than to walk or cycle up to it. These residents, therefore, tend to rely on park-and-ride unless they can be dropped off by someone or else give up the train option altogether and drive to work.
Safety issues

At Murdoch train station, pedestrians and cyclists entering from surrounding neighbourhoods have to walk along and cross freeway ramps. Car drivers after parking their cars have to negotiate with other cars searching for parking as they cross over the vast parking area to enter the station. Another concern is that of safety from crime. For the safety of after-hours users, the expansive park-and-ride spaces are floodlit till very late in the night until the last train service.

Potential strategies to deal with access and parking issues

Improving access to train station

There seems to be a commonly held view among PTA staff that most complaints about insufficient station car parking comes from local residents living within walkable distances – or the pedshed. These residents are seen as demanding that they should have the right to park at the stations rather than those who drive into the station from afar. Whether or not that is the case, there haven’t been many initiatives by PTA targeting local residents’ patronage. There is also not much done in the way of improving pedestrian or cycling access to the station through physical improvements aimed at making the access comfortable and safe, barring a few half-hearted attempts such as providing bike cages at stations.

The State government has recently pledged a $50 million fund earmarked for the improvement of station environs – which includes parking and access. However, it appears the lion’s share will go to parking as it is a politically significant issue (PTA interview). This amount could be spent on improving feeder bus services to stations to
bring them at par with Murdoch which was developed around an existing bus transfer station and hence has the highest proportion of passengers reaching by bus. From the PTA interview it seems that this fund is not intended to improve feeder bus services for surrounding areas. There is also the perception that the figure of $50 million has been calculated on the basis of what it would cost to provide paved surface (at grade) parking rather than the costlier parking structures at train stations.

Instead of increasing car parks and attracting more people to drive to train stations, the government has to be proactive in travel demand management with policies aimed at reducing demand for car use. The focus should be on making feeder buses from catchment suburbs more reliable and increasing service coverage especially during evenings enabling people to get home from train stations without depending on cars.

In view of MAC structure plan, there is potential for the proposed hospital and university to provide their own community bus shuttle to the station for their students and staff. There should be adequate provision for kiss-and-ride facilities (passenger set down zones) so passengers can be picked up or dropped off by family and friends rather than having to park the car at the station for the whole day. There is also potential to learn from Toronto’s experience where in spite of low density urban structure, the city has developed a number of initiatives to strengthen the bus services through measures such as express bus services to Light rail networks (LRT), starting ‘ten- minute- or- better bus services’ during both peak and off-peak periods in certain key routes and provision of better bus facilities in the stations (Toronto Transit Commission, 2009). Mees (2003) rightly points out that in contrast
to cities like Melbourne, Toronto has a seamless integration of buses and trains which contributes to the success of public transit system in Toronto.

**User charging for parking and limited free parking**

PTA currently follows a 40 percent pay and 60 percent free parking policy for park-and-ride facilities. Paid parking is capped at $2 per day, which amounts to 40 per cent of what the nearby Murdoch university charges ($5 per day) for campus parking per day. This cheap provision of parking needs to be reviewed.

There should be a move towards policies of charging higher fees for car parking to reflect the price of maintaining the car parks to discourage people parking for free. Attempts to subsidise parking costs not only encourage car dependence, but also forces PTA to preclude consideration of options other surface area parking due to expenditure concerns. As Boroski *et al.* (2005) argue, building structured parking garages in place of surface area can not only increase densities but also improve pedestrian accessibility to transit stations. Structured parking may also reduce environmental impacts by reducing stormwater runoffs and increase safety and security. It could also stimulate accompanying retail and/or community functions within the station area, strengthening the connections between the station and surrounding developments.

**Regulating and Pricing Spillover Parking**

A train station that is well integrated into its surrounding neighbourhoods will encourage those living within the pedshed to walk up to the stations and patronize the train service. The easy access and connection between the station and
neighbourhoods can also be seen as an income generator for local communities by opening up the local streets as potential off-street car parking bays. Experience from the USA suggests that the potential spillover parking can be controlled through regulation and pricing.

In the case of Murdoch station, for example, there seems to be an over-reaction within Murdoch suburb to the threat of spillover parking triggered perhaps by proximity to the university campus as much as the station, causing inconvenience to local residents. If the connection to the station is improved, rather than reinforcing the preventative measures, off-street parking bays could be created and leased. Revenue thus generated could cover costs of maintenance and enforcement and the surplus could be made available to local residents’ groups to invest on street improvements. Such initiatives could be integrated into transport strategies developed through TravelSmart programs.

Creative reuse of developer contributions for improving access and shuttle service

There is a growing awareness within some circles about the futility of providing increased surface area parking at train stations. The phenomenon of “induced demand” often associated with providing additional road capacities also seems to apply to parking provisions. Additional parking bays provided to meet demands only provide temporary relief while encouraging more people to try to find parking. The additional capacity is soon filled up and the demand for more begins to mount.

In recent TOD initiatives within the Perth metropolitan region, such as at the City of Stirling, a group called Stirling Alliance has been established that includes builders, developers, the local council and state government agencies (mainly the Department
of Main Roads and PTA). The Alliance is currently negotiating for the developer (Westfield) to provide significantly reduced levels of car parking compared to what they would be required to provide as per prevalent development standards. Savings from reduced car parking provision could be treated as developer contributions and used specifically for facilities / improvements to public transport options. The Alliance is investigating ways to improve access to the city centre such as setting up a shuttle bus service.

This initiative points to a major departure from the normal practice in Perth where planning standards still focus on enforcing minimum car parking standards. It marks a realization within PTA itself that the practice of increasing car parking bays at stations cannot go on indefinitely as the Crown land begins to run out (PTA interview). Stirling represents a built up area where vacant Crown land is not abundant – unlike around stations along the Kwinana freeway on Mandurah-Joondalup train line. If successful, this could serve as an example of best practice and a model to be employed to improve access to the TOD around train stations.

**Opportunities of crown land in land banking and provision of air rights**

The acquisition of Crown land for the purposes of transit has provided the PTA a system of land banking for future development and thereby revenue generation. It also allows the state to push for higher density developments along the aims of the Network City strategy, by involving local governments in medium to high density mixed use transit-oriented development projects based around train stations. The land acquired by PTA for this purpose should be efficiently utilised to meet these planning objectives. It is imperative that the amount of land used up by car parking should be
minimised, making way for more profitable uses, either by reducing the number of car
park bays or creating multiple uses of the land.

It is commonly believed that structured parking costs from two to five times that of
providing as much surface area parking. In Perth, it costs about $10,000 to build a
paved (at grade) car bay, while the costs of multi-storeyed car parks costs at least
$30,000 per bay (PTA interview). The increased costs associated with providing
structured parking effectively rule them out from consideration when PTA’s policy of
providing free or highly subsidised parking means that there are no effective means of
recovering the costs. However, in the longer term, they can allow other uses to be
built upon them and improve their integration with the TOD projects on site. The
creation of opportunities for selling air rights over train stations and car parks would
encourage developers to commit to transit oriented developments in the long run.

Preparation of area wide integrated transport plan

Resolving parking and access issues at train stations requires due consideration of the
surrounding areas. In the case of Murdoch station, for example, the nearby university
campus and the hospital should be targeted and closely involved in preparing
sustainable transport plans that explore the incorporation of a range of transport
options such as car park bay sharing, discounted transit passes, dedicated cycling and
walking lanes up to the station and provision of bike lockers at both ends to minimise
car dependency. There is an enhanced role for TravelSmart to play in this regard to
develop an area wide integrated transport plan for the whole catchment of Murdoch
station with involvement of key stakeholders in the area. A concerted effort to
improve access to station from surrounding areas could minimise the need to provide huge car parking facilities at the station.

Improvement of accessibility through TODs

In the longer term, train stations along the Kwinana Freeway on the Mandurah-Joondalup line are potential sites for TODs. Learning from the experience overseas, we need to put in place TOD design and performance criteria that takes into account the category of TOD suitable for each context and accordingly the functions that the TOD should perform. There also needs to be an overseeing agency that ensures the TOD design provides good access/connection between the train station, bus station, the various components of the TOD and the surrounding neighbourhoods.

TOD design incorporating higher densities and mixed land uses can potentially require car parking provisions at much lower levels than prevailing conventional standards require. Reduced car parking requirements for TOD around train stations can free up land for more community friendly uses such as public parks or community spaces and contribute to more community friendly developments. Reduced car parking provision could also be converted into developers’ contribution to fund such developments and improve local bus connections. Fulfilling the broad community objectives, not just car parking requirements should be the basis for development of TODs.

Conclusion

It is natural for a public agency on achieving its performance targets. However, a noarrow focus on performance levels can lead to a situation where efficiency
overtakes effectiveness as a priority. While the successful operation of the train service is undoubtedly an effective means of delivering sustainable transport, it is merely the means and not the end. Sustainable transport requires not only that people use trains but also that they shake off, as far as possible, their reliance on cars.

While the recent Mandurah-Joondalup rail line serves to facilitate Network City’s strategic goal by promoting TODs around transit stations, the implementation of TODs is still in early stages. It may be timely to put in place measures to prevent alienation of surrounding neighbourhoods from train stations. Access and parking issues need to be addressed through strategies such as physical improvements for safety and better walkability and integrated sustainable transport plans through TravelSmart initiatives. This needs to be seen in combination with setting up design criteria for TODs that define the performance standards based on categorisation of types of TOD for each context. This would help to ensure that TODs do not merely provide high density development opportunity for developers, but that they also help local councils realise Living Neighbourhood objectives within surrounding neighbourhoods, such as creating effective pedsheds.

This paper has highlighted various measures that could be considered based on overseas experience, mainly from USA. These by no means represent an exhaustive list of possibilities. They, however, serve to make the point that there is room to improve the current parking and access situation around train stations in Perth. A major recommendation that this paper makes is to focus on finding and employing mechanisms to effect improvements in terms of access between stations and their surrounds within the pedshed. Another recommendation is to discourage, as far as
possible, users of train stations from driving up to the stations by asking them to pay for the ‘cost of free parking’ – borrowing Shoup’s (2005) terminology. This is in line with the concept of travel demand management as opposed to the ‘predict and provide’ approach. Charging more realistic fee for parking, rather than trying to subsidise the true costs, could allow structured parking provision to be considered rationally. These structures could allow other uses to be accommodated around them which could be later integrated into TOD projects. The idea of pricing the parking could also open up the possibility of using the surrounding neighbourhood streets to provide regulated off-street parking as well as a source of revenue for local area improvements.

REFERENCES


Figure 1: Perth’s Suburban Railways network
Murdoch Station lies along the Mandurah-Joondalup line towards the south.
Figure 2: Murdoch Station - Location
Murdoch Station and its park-and ride facilities are located around the intersection of Kwinana Freeway and South Street

Source: Google – Map Data (2009)