

# The Green City

## How to marry bicycles and rail

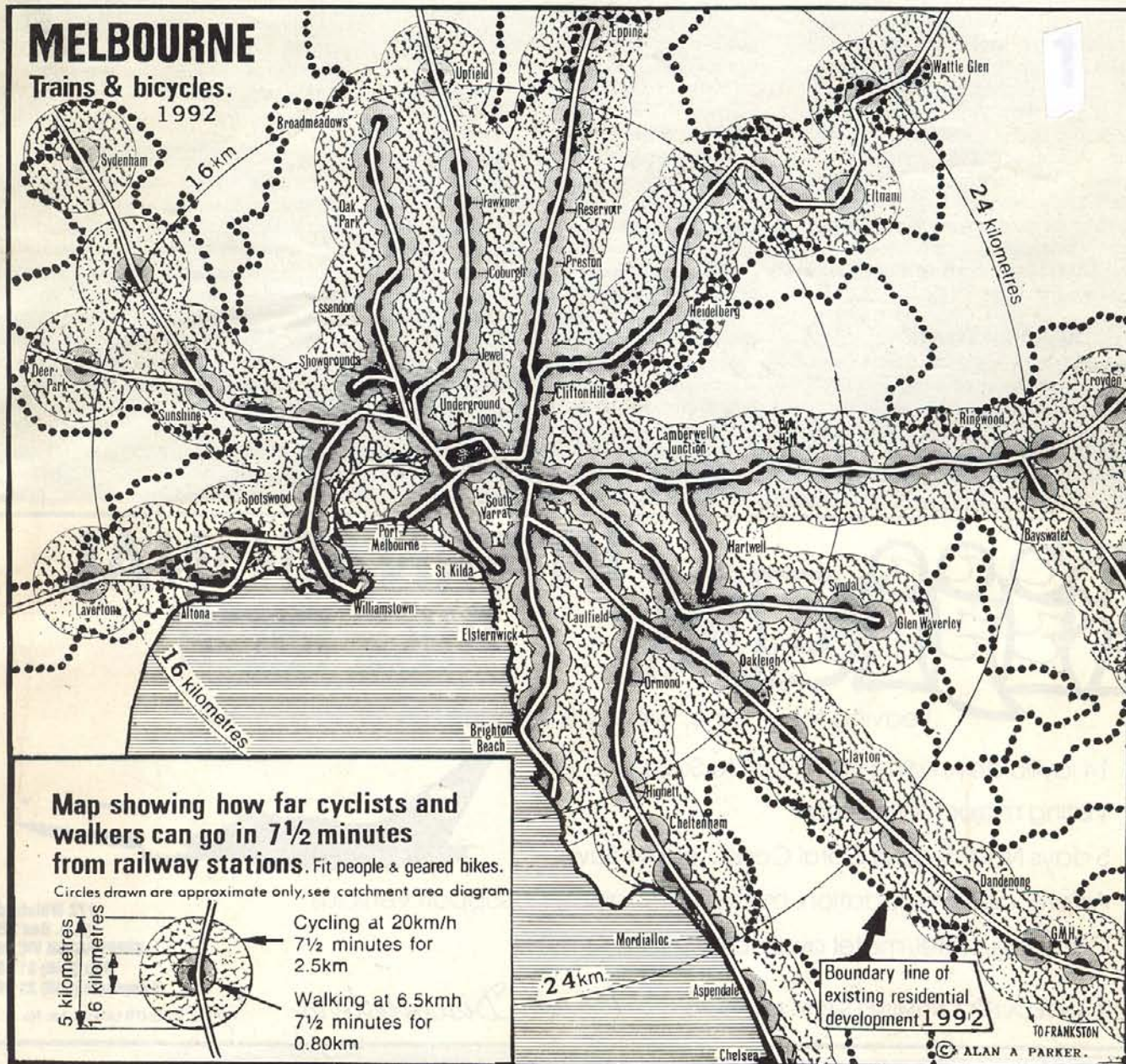
by ALAN PARKER

**T**he humble bicycle is the truly green machine that can improve access to railway stations, trunk bus routes and be used instead of a car for most local trips. The bicycle can enable many households to do without a second or third car and enhance the mobility of those who do not have a car out of choice or necessity. For example, the map shows that 2.3 million people live within

easy cycling distance (3 km) of a railway station in the Melbourne metropolitan area but only 500,000 are within easy walking distance. Therefore, the potential of bike/rail trips to replace long urban car trips is considerable. Maps for other capital city areas with rail systems would show similar potential.

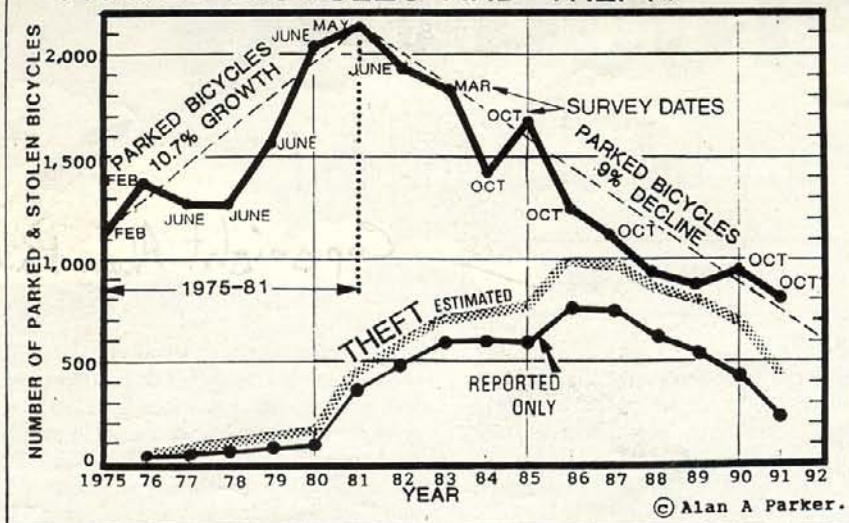
The average motorist produces 4.9 tonnes of carbon dioxide emissions a year. The

growth of motor traffic and the predicted increase in ultra-violet radiation at low level will photo-chemically increase smog levels from car exhausts and become an increasing health hazard. Encouraging bicycles and electric trains is a part solution to this problem and a low cost means of cleaning up the air we breathe and slowly breaking the polluting car habit.



# MELBOURNE BIKE/RAIL USERS, PARKED BICYCLES AND THEFT.

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Unfortunately, uncontrolled bicycle theft and vandalism at rail stations is discouraging bike/rail travel. There are now around 9,000 rail patrons who have had their bicycles stolen or destroyed by vandals in the last 11 years. The risk of theft has been more than 50% per year since 1984 as shown on the graph (Table 2). Since Victoria's Cain government took office in 1982, repeated political promises have been made to combat theft but only token measures have been taken. Hopefully, the next government will sack those responsible and ensure funds are available for 1,000 secure bicycle parking spaces per year for five years.

## Bike/Rail Transit

The Ecologically Sustainable Development working group report on transport (1992), recommends that "bicycle access to rail be greatly encouraged." The Senate Standing Committee in its report, "Rescue the Future", recommends bike/rail transport, too:

"5.39 There is much that could be done to make urban public transport more attractive to potential users. For example, access to public transport is often difficult in Australia's sprawling low density cities.

"5.40 An innovative and cost-effective solution to this problem is to encourage people to utilise the suburban train and bus networks through the provision of secure bicycle storage at stations or selected stops. Supported by an improved and extended bicycle path network connected to rail and bus stations, this action would greatly increase the catchment areas and allow more people to use public transport."

These recommendations are relevant because in 1992 the great majority of many capital cities' population is within easy cycling distance of a rail station. In the Melbourne area, bicycle paths are only needed to access some of the major stations. Around 80% of stations have safe bicycle access. Indeed, over 100 unstaffed stations are an

open invitation to bike thieves and are mostly tucked away in quiet residential areas with safe back road access routes.

It is claimed that the major deficiency of the rail system is that it only leads to and from the CBD but a shift to bicycle use at both ends of a rail trip provides access to all the inner suburbs and a whole range of cross suburban trips becomes feasible within the 6 km wide bike/rail access corridors shown on the map.

Unfortunately no official study has ever been done of cycling households which currently do not use the railway but live between one and three km of a station. Nor is it known how many potential bike/rail patrons there are but it may be over 100,000. If safe bicycle access were available at stops along circumferential trunk bus routes, then 95% of the metropolitan population would be within easy cycling distance of trunk public transport services.

In the short term, there is need for secure storage in the form of lockers, lock-up rooms and cages and closed circuit surveillance of bike racks. In the longer term there will be scope for automated bicycle warehouses similar to those used to store bicycles over Japanese rail stations, where there are three million bike/rail users. Another benefit is that it would enable better use of railway land for urban consolidation and reduce urban sprawl.

## Discrimination

The experience of some bike/rail patrons is shocking. One man who lived three km from a station had two bicycles stolen and a third destroyed by vandals, all within two years. Not surprisingly, he gave up trying to use trains and bought a car instead. Theft has cost bike/rail users \$2.7 million and probably another \$300,000 for vandalised bicycles and even more in lost time and inconvenience. For most rail patrons the theft of one bicycle is enough to destroy their commitment to train travel.

In 1981 there were 2,250 bike/rail patrons but, by 1991, only 830 were left on the

## Bike Rail Dual Mode Travel Market Segments

Trip Time	Trip/Type	Origin	Destination	Facility Or Service
Peak Hour Commute	Radial with flow Radial counter flow Cross city with flow Cross suburban contra flow	Mid and outer sub Inner mid suburbs Inner and mid sub All suburbs	CBD, inner sub Outer suburbs Inner and mid sub All suburbs	Theft-proof storage sheds or racks. Storage at inner suburban stations to encourage bicycle access at both ends of trips
Off Peak Utility	Radial Cross city Cross suburban	All suburbs All suburbs All suburbs	CBD/inner suburbs All suburbs All suburbs	Travel with bicycle Bicycle hire services Public or private
Off Peak Recreation	Radial Cross city Cross suburban	All suburbs/CBD All suburbs All suburbs	CBD/all suburbs All suburbs All suburbs	Travel with bicycle Bicycle hire services Public or private

Melbourne rail system. Theft increased from 100 a year in 1976 to 500 per year in 1981 and to nearly 1,000 per year in 1986. The hatched grey line on Table 2 shows the estimated total level of theft which includes estimates of thefts not reported to police. The 9% annual decline in bike/rail patronage in ten years compares to the increase in bicycle sales of an average 8.5% per year over the same period. Other types of bicycle use have greatly increased. For example, bicycle rallies in 1981 attracted around 1,000 cyclists but in March 1992, 13,000 cyclists rode in a Melbourne bike rally. Around 900 new bike/rail users turn up at stations each year to learn the hard way about bicycle theft and, if they want to hire a bicycle locker, they find that there are less than 200 in working order for over 200 stations.

A serious consequence of theft for the victim is the reinforcement of fears that stations are threatening places to be in. This is particularly true when a bicycle is so vandalised that it is unusable. It is understandable that very few women ride to stations even though they have bought more bicycles than men in recent years.

It is unfortunate but, in households with active cyclists who need to commute long distances, most do not even consider bike/rail as a reliable and convenient form of travel. The fear of theft usually results in the purchase of a second or third household car. If theft had been kept to an acceptable level there would be about 7,000 bike/rail users today, with a potential to increase to over

20,000 by the year 2000. Inaction by the rail authority has contributed to car dependence and urban sprawl.

To obtain a reasonable measure of the theft problem as a form of discrimination, a comparison can be made with the risk of car theft at stations. The police focus on car thefts and over 80% of cars stolen from stations will be recovered but only 5% of bicycles are recovered. In 1991 the risk of the permanent loss of a car was only 2% or one twenty-fifth the risk of permanently losing a bicycle. This is proof of discrimination against cyclists and of the rail authority ignoring the Transport Act's clause requiring it to "encourage bicycle access". Overseas, best railway practice in Germany, the Netherlands, Denmark and Japan is to provide secure bicycle storage and give priority to the access needs of cyclists.

The cost of denying cyclists access

Victoria's rail authority, the PTC, spends \$2,000 on the construction of the average car parking space and the large car parks take up land that should be used for housing or shops. If the opportunity cost of this land is accounted for, the average cost of a car parking space would be around \$6,000. The PTC grossly subsidises the motorists and fails to provide bicycle storage which can be provided for an average of around \$300 per bicycle. Not only can six bicycles be stored in one car parking space, bicycles can be stored on platforms, in unused station rooms or in the air space over the tracks.

At present we have a car-dominated transport system and even the rail system services

the needs of motorists above all others. On an average day in 1990, the number of rail patrons parking their cars was around 23,000 at 143 stations on the Melbourne system.

One study of car drivers shows how wasteful is this car access. Firstly, 17% of drivers came one km or less, a distance easily walked. Secondly, 42% of drivers came from between 0.75 and 2.0 km, a very easy bike ride. Thirdly, another 16% came from between two and three km, still an easy bike ride on flat terrain. These data show that expensive car parks have been provided for 60% of drivers who come from within easy cycling distance (3 km) of a station. Bicycle transport studies indicate that it is likely that 40% of these patrons have a bicycle in working order and, as cycling is becoming more popular with adults, this percentage will increase.

Ninety percent of bike/rail access trips to the Melbourne network are 3 km or less and 70% of trips are 2 km or less. The target area for the marketing of the bike/rail option is, therefore, within a 2.5 to 3 km band on each side of existing rail lines.

It makes economic sense to encourage the able-bodied drivers to use bicycles for access trips less than 3 kilometres because it will release car parking spaces for the disabled and those who drive more than three km to the station. The greening of the rail system with the bicycle is part of the solution and one step towards the creation of an ecologically sustainable transport system.

