

safe cycling and the melbourne bikeway plan

bicycle
institute of
victoria



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An examination of the safety needs of those who regularly cycle in Melbourne, a review of the Melbourne Bikeway Plan, and proposals for future studies.

Common Problem of the Two Wheelers

Cyclists, moped riders and motor cyclists throughout the world have many things in common. They are part of an international resurgence in interest in two wheeled transportation, they are vulnerable and unprotected relative to the motor car and all suffer from not being subjected to effective planning and safety measures which has resulted in the currently high accident rates in nearly all western cities.

The Past and Near Future

The rapidly deteriorating condition of urban environment due to the overuse of the car and the lack of good public transport are a great threat to the cyclists basic right to use the roads in safety. The predictable worsening of road congestion is conveniently ignored, in bikeway studies, including the Melbourne Bikeway Plan. In general motor cyclists and moped riders have had a better deal than cyclists who have been designated as undesirable road users because of their low speed, by road planners. Cyclists are banned from freeways, with no alternative paths being provided for them as is provided in many countries. There is no provision being made for cyclists to cross the West Gate Bridge when it is opened and the ferry removed. It will probably take 20 years to build the 365 km of bicycle paths recommended by the Melbourne Bikeway Plan, which while being desirable is poor consolation for the more direct routes denied, or to be denied, to cyclists. The routes denied to regular cyclists do happen to go where they want to go which is more than what can be said for many of the paths in the bikeway plan.

The Future Role of the Bicycle

A return to walking is an idealistic planner's pipe dream that ignores the fact that at the low densities in most of Melbourne's suburbs walking is too time consuming. There is another choice apart from motorised anonymity or pedestrianisation. Surely the bicycle is the in-between machine that is both convivial and an efficient people mover for short distances within the low density suburbs.

For the same physical effort as walking, cyclists can go 3½ times as far and cover 10 times the area and the significance of these simple facts does not seem to be understood by either town planners or transportation planners.

Also using bicycles to feed the rail system increases the catchment areas of railway corridors 4 to 10 times depending upon the spacing of the stations.

Surely using a machine weighing only 30 lb, that does not pollute is a more elegant and humane solution to part of our transportation problem than the use of resource

wasting machines one hundred times heavier; spewing filth out of the back end and providing offence to people's hearing.

The major consumers of non-renewable resources in the entire world are a small minority of western car users, whose per capita consumption is over fifty times greater than the average Indian. The environmental viewpoint on bicycle usage seen from a global perspective has been elegantly put by the moral philosopher Ivan Illich, in his book "Energy & Equity" which is based on the simple proposition that a society in which it is possible for the bicycle to be the principal means of transport, backed up by a very basic public transport system, is a just society, that will allow mankind to survive on this planet without laying it to waste, through resource depletion and social violence.

The car is the major cause of death for the under twenty-fives and the acceptability of this form of social violence is unlikely to persist. The same changes in attitude that underly the resurgence of interest in two wheeled transportation in general are beginning to affect the planners basic terms of reference in other areas.

Energy Conservation Policies

Throughout the world the necessity to have national energy conservation policies is being realised and in many countries these involve transportation strategies that include the promotion of bicycling and bikeways.

In the USA State governments and prestigious bodies such as the US Environment Protection Agency are funding bikeways for this reason.

Should energy conservation policies be adopted in Australia as was recommended in the 'Ranger Inquiry' report then both the bicycle and power assisted bicycle, that is capable of reaching very high levels of fuel efficiency between 250 and 300 mpg would have to be taken seriously.

Such vehicles could use a bikeway network and share it with cyclists. Modern mopeds are too powerful for this purpose as the Dutch have found out with their shared bicycle/moped paths.

Energy conservation was ignored by the Melbourne University Study for the valid reason that they were not asked to study it, but if politicians are to be motivated to provide funding to build the 8 million dollars worth of bicycle paths it is an important consideration. Likewise cycling is the one form of transport that is wholly compatible with the low density urban environment that most Australians live in and that virtue of the bicycle is also ignored.

The need for a "Fail Safe" Principle in Planning

In the long term planning for the extensive use of bicycles is the only "fail safe" transport strategy for any nation to

adopt, because all other energy intensive alternatives are premised on the assumption that cheap nuclear power will allow the western nations to continue to waste the world's finite resources.

However, the probability is high of nuclear technology failing to produce the abundant and cheap energy in a few years time when it is going to be needed, which is good reason for having "fail safe" alternative policies.

This is why the conscious and deliberate planning for the return to bicycle transportation is pertinent to the whole question of national security, if the necessity for a "fail safe" alternatives in planning the nation's future pattern of urban development is accepted. At present all the eggs of western civilisation are placed in the one proverbial basket.

The Californian Experience

In some countries a more rational attitude to bicycle facilities planning is beginning to emerge.

In the State of California which has the reputation of being the motor car mecca of the world, the planning of bikeways has matured beyond the stage of experimentation to that of an established planning art.

As Californian cities suffer from the same kind of low density urban sprawl that Melbourne does, it offers a ready made model for comparison of what needs to be done to accommodate the needs of cyclists. The Non-motorised Planning Unit of the California Division of Highways operates the largest bicycle facilities planning function in the western world and is the principal provider of what cyclists want, which is the means to use the roads in greater safety. Bicycle paths are provided as part of new road construction, forming an important but very minor part of the urban bikeway network. Separate off-road bicycle paths are provided by other agencies as well, and safety education and law enforcement of road rules are all applied with great thoroughness. California's 7½ million cyclists have always been fortunate because the speed limit is 25 mph in the residential and business districts of cities unless "otherwise posted". This originated in a basic concern for pedestrians in California and gives pedestrians and cyclists more decision time to judge traffic conditions and reduces the stopping distance of motor vehicles to one half of what it would be at 60 kph (the prevailing Victorian speed limit).

As most cycling takes place on roads the existence of a base speed limit of 25 mph which cannot be increased unless local councils can get the road redesignated as an arterial road enables Californian cyclists to select routes for themselves through the residential street network that are free from fast moving vehicles.

It is also crucially important in those cities which have well developed bikeway networks as the greatest mileage is on what are termed "bicycle routes", that is roads with a sign saying "Bicycle route" and on which bicycles and cars share the roads. Some signed routes in the vicinity of primary schools will also have an even lower speed limit of 15 mph attached to Bicycle Route signs as well.

Of all the engineering solutions available to improve the safety of bicycling the 25 mph residential speed limit is the most important, but all that the Melbourne Bikeway Plan has to say about it is a one line recommendation.

The Department of Youth, Sport and Recreation

This department has extended itself to the uttermost to satisfy cyclists needs and the financing of the Melbourne Bikeway Plan is the start of a long slow readjustment of the planning process, to take into account the non-polluting bicycle. No matter what the defects of the Plan are it represents a move away from planning neglect and hopefully is the first of many studies concerned with the promotion of safe cycling in Melbourne.

\$50,000 has also been approved from State recreational funds for what is essentially a traffic engineering exercise in Geelong to test out on-road bikeways, such as protected and unprotected bicycle lanes, bicycle paths along major roads and a 25 mph residential speed limit.

The Bicycle Institute of Victoria will be publishing a book that complements the Melbourne Bikeway Plan called "Safe Cycling" which will contain in its appendix most of the Melbourne Bikeway Plan; including the complete survey data, conclusions and chapters on bicycle safety and support systems. In this way the Melbourne Bikeway Plan will be brought to the attention of a much greater number of people. There are only 200 official copies of the Plan and only a few of these are publicly available for \$11 each.

The Bicycle Institute of Victoria while welcoming the Plan, and promoting its distribution is concerned that the Plan is a kind of master plan, which will guide decision-making for years to come in all matters related to non-competitive cycling needs in metropolitan Melbourne. The plan is far too narrow and imbalanced in its contents for it to be an effective master plan and its in-depth research only applies to one kind of bikeway — the bicycle path and it is certainly not a strategy plan for bikeways as its title so misleadingly suggests.

What the complementary publication "Safe Cycling" seeks to achieve is to explore and develop what needs to be done now that the first steps have been taken. Tom Uren's initiatives resulted in the changing of the Roads Grant Act to allow funding and Brian Dixon's initiatives have created a bicycle path plan, which can form part of a real bikeway plan, if the Victorian Ministry of Transport will instruct the CRB to set up a bikeway planning unit.

The Melbourne Bikeway Plan

The Melbourne University Study cost \$15,000, the funds being provided by the Department of Youth, Sport & Recreation. Most of the research work was done by Jeremy Pike, a research fellow in the Department of Environmental Studies. He surveyed over three thousand cyclists' needs by the use of a questionnaire, collated relevant accident data and other factual material from government sources and came up with certain important facts and recommendations.

Facts established by the study are that there are approximately 450,000 to 500,000 cyclists in Melbourne, and that sales of bicycles are increasing steadily and appear to be going to continue to increase steadily without the explosive boom and bust in sales that took place in America. Middle-class trendies and their offspring are the pace setters in the revival of cycling. The majority of cyclists surveyed ride to have fun and to get exercise. One

third of all cyclists ride their bicycles for recreation around the neighbourhood, or to go to a recreational area. One tenth of them ride them to work, one quarter of them ride to school, one fifth of them ride to the shops and a tiny minority ride to other places, while touring or racing.

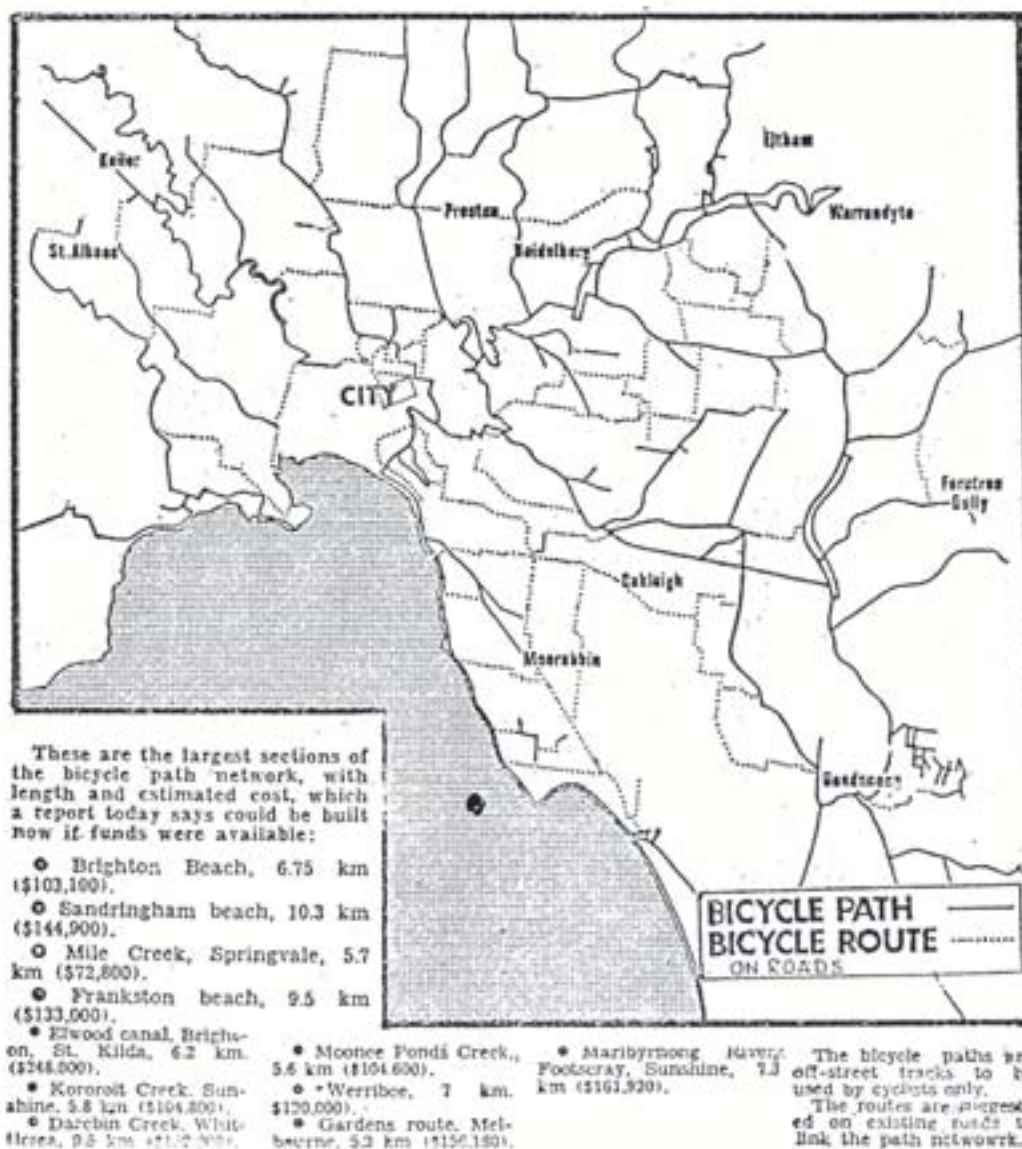
Both week days and week-ends are used almost equally for cycling, which is a year round activity. The distance travelled one way on rides seemed to vary from 1 mile to 10 miles, but due to the large amount of children in the survey, the average one way ride was only 1 1/4 miles. Two-thirds of all cyclists are school children and only 1/4 of them use their bicycles to go to school. The principal deterrents preventing more riding are that half of those surveyed are frightened off by the traffic and one quarter don't have safe or suitable places to put their bicycles and one-tenth of them consider rain a problem. Of all the one way rides made by children only one-fifth are greater than 1 1/4 miles. As the data for children and adults was not separated, it was not possible to see if there were any differences, but from the figures it would appear that adults seemed to be deterred from cycling for the same reasons as children, in roughly the same proportions. However, they do ride

further than children.

In the 15 to 29 year old age group, one third of all one way rides are more than 3 1/4 miles and about one tenth of the one way rides are more than 6 miles. The length of the rides varied with their purposes and rides to work were twice as long as rides to other places.

Construction Priorities

A total of 360 km of bicycle paths was recommended for construction and a technique of ranking the bicycle paths in order of construction priority was used, so that despite the absence of statistically valid sampling, a reasonable system of priorities for funding paths as recreational facilities was given. What was not determined was the priorities for funding on-road facilities relative to the on-road facilities, because working out the details of the on-road system was seen as being beyond the scope of the study. What is really needed is an order of construction priorities for a bikeway network not conceived of in narrow recreational terms. The Survey established that "34.3% ride either to recreational areas or for recreational reasons around the neighbourhood" and most of these will have to use roads to get to the proposed paths. 24.6% of cyclists



ride to school and the great majority of these cyclists will not be able to use the paths to do this, nor will the 18.8% who go shopping and the 9.8% who cycle to work.

Incorrect Terminology

The most confusing part of the Melbourne Bikeway Plan is the fact that it is not called the Melbourne Bicycle Path plan, which it is, it is certainly not a Bikeway Plan, although it was originally intended to be one, hence the inappropriate title.

The term bikeway is a much abused term and the term bikeway network is little understood. What is a bikeway plan if this report isn't one can be partially worked out from information collected in the survey data. Cyclists currently using roads were asked how far they would be prepared to cycle to a safe bicycle route and according to the survey results the majority 51% said that they would be prepared to ride up to .8 km or ½ mile to join a safe bicycle route and 96% of those answering this question in the survey said they would use a bicycle path if it was available. This shows that Melbourne's cyclists would need a bikeway network with a ½ mile grid spacing for it to be usable, that is for it to attract cyclists to it in preference to the more dangerous main roads. This is in accordance with the internationally recognised distance for grid spacing which means that an effective Bikeway Network in the Melbourne area would be at least 2000 miles long, comprising mostly of mixed routes through residential streets, with several hundreds of miles of on-road protected and unprotected bicycle lanes or sub-arterial and arterial roads and supplemented by a low mileage of separate off-road bicycle paths as recommended in the plan.

Hundreds of special intersections would be needed and bikeway short cuts that bridge road system barriers would also be needed in large numbers.

Which brings up the second misuse of terms. A transport network does not merely consist of a pattern of lines on a map, it is part of a viable system that is called a network because it is viable for the user. There is no such thing as a network of bicycle paths in this sense, only a network of bikeways of which bicycle paths form an important but minor part of overall network.

Safe or Dangerous Bikeway Networks

Bicycles are legally classified as road-vehicles and have been used extensively for a hundred years on roads.

It therefore follows that operational bikeway networks have always existed whether or not plans are produced proclaiming that they are going to create Bikeway networks for cyclists, where none existed before.

They existed long before the terms bikeway or bikeway network were coined by planning professionals.

The point at issue is not the creation of something new but the transformation of the Network that already exists in such a way that it can be separated from the Arterial Road Network at those points at which it is not possible for bicycles and motor vehicles to safely share the road together. How this is done is to establish where the most dangerous points in the existing arterial road system are and to examine what can be done so that cyclists can bypass them and to establish which parts of the road system are so bad that they have already deterred the use of the

bicycle and restricted cyclists mobility.

What Bikeway planning is about is enabling those cyclists who cycle regularly, to be able to do so in greater safety and that the \$8 million dollars is worth spending on improving the existing bikeway network for this purpose. The real justification for spending money on bicycle facilities is to enable cyclists to by-pass dangerous traffic conditions. By all means let bicycle paths be built, but let those be built first that enable the greatest number of cyclists to by-pass dangerous parts of arterial road system.

The promotion of occasional recreational cycling is a blatant form of consumerism that does not encourage the replacement of the car by the bicycle, but encourages the use of the bicycle as an expensive accessory to the car, it cannot benefit society, only the motor car, bicycle and bicycle accessory manufacturers.

Cycling as a means of recreation should be encouraged on the grounds that it will lead to the use of the bicycle as a means of transportation because it is the extensive use of bicycles for this reason above all others that will lead to the improvement in our urban environment.

Creating a bikeway network of sufficient quality to encourage cyclists to have fun in moving about for purposeful reasons was not considered in the plan at all.

Bikeway Funding

Not only does the Melbourne Bikeway Plan fail to make a good case for spending \$8 million dollars, it makes no recommendations about where the funding might come from.

The existing system of funding means that the bicycles and paths will probably never be built, because as the plan states in the conclusion: "If any significant increase to Melbourne's bicycle path network is to be made, the funding system has to be reviewed. The \$1,000 maximum on a dollar for dollar basis available to councils at today's prices will pay only for approximately 60 metres of bicycle path."

Which is as absurd as it sounds, because the great majority of the paths in the plan are off-road paths and cannot be funded via provisions in the Roads Grant Act and no-one has yet worked out what federal or state laws apply to the funding of off-road bicycle paths. Some of the bicycle paths proposed could be funded from highway funds; if the CRB would justify them, however it is not considered in the plan and the whole question of who pays for what has got to be sorted out. Bicycle facilities could currently obtain shared funding under several programmes within the Roads Grant Act, they are: Arterial Roads Programme, Urban Local Roads Programme, and the Minor Improvements for Traffic Engineering and Road Safety Programme. Experimental and demonstration projects could be funded under the Planning and Research Act and if the level of unemployment continues to grow the R.E.D. scheme may be reactivated and construction funded from it. Some bicycle paths were funded from the R.E.D. scheme when it was previously in operation. The weakness of all these legal provisions is that they allow for the alternative uses of limited funds, whereas in the USA if Federal funds are not spent on Bikeways they can't be spent on anything else, thus

providing an incentive to State Road Authorities to construct Bikeways and maximise their construction programmes.

A Need for a Bikeway Strategy Plan

As with the road system it is important that a bikeway network be developed as a functional hierarchy, comprising access ways with mixed traffic, bicycle collectors or distributors and bicycle arterials.

Unfortunately this has yet to be thought out in Melbourne and as the report states in the conclusion "this on street system should be designed by an agency such as the Country Roads Board which has the capability to undertake such a task". However, how can the CRB undertake this work, or more importantly, how are they to know they should undertake this work, with the limited information contained in the so-called Bikeway Plan which does not develop a bikeway strategy plan for them to act upon.

There are many ways of providing for the safer movement of bicycles on roads and these are not even described in the Bikeway Plan. Some of these are simple, some are complex and they range from the provision of maps of safer routes that may not have any bicycle route signs on them, through a whole series of facilities to bicycle freeways.

It should have described what bikeway planning is about and there should have been some mention of what the three basic elements in a bikeway network are — bikeway links, bikeway intersections, and bikeway short cuts and bypasses.

Bikeway Links

These are very well described in other bikeway planning studies and there are bikeways of all types between motor road intersection and very rarely between separate bicycle path intersections. Known variously as class I, II and III paths, lanes, routes and various deviations to this. Curiously de-facto bikeways are not mentioned because they involve technically illegal usage yet they are one of the most important forms of bikeway, especially for children.

Bikeway Intersections

Bikeway links are what most bikeway planning studies and published articles on bikeway planning concentrate on, despite the obvious fact that most accidents occur at intersections. A notable exception to this is the only full length book on the subject called "Bicycle transit" by Bruce Balshon e (October 1975 — Praeger Publishers) which states the following: "Planning for crossings and intersections is one of the most serious problems the bikeway designer faces. Intersections with only two traffic modes — pedestrian and automobile — are dangerous in themselves. The addition of bicycles without provisions for their recognition or safety can be disastrous."

In any bikeway network the intersection of the bikeway with fast moving, and/or congested motor vehicle lanes, are often more important areas to concentrate on. The best article written on this theme was "Bicycle bottlenecks" by Bob Shanteau in the June 1976 issue of the American cycling magazine "Bicycling". Bob Shanteau is doing graduate work in transportation engineering at the University of California and his new approach is now accepted by the US Department of Transportation as

being the most relevant.

Ignoring intersections leads to dangerous facilities of which the Yarra River bicycle path is a good example, where it channelises cyclists to cross Jeffries Parade just below the Princes Bridge at a deadly blind corner.

Bikeway Short Cuts and Bypasses

What distinguishes these from the other two is that they bridge barriers in the road system for cyclists but not for motorists, thus providing better access for cyclists enabling them to get to where they want quicker, to avoid bad motor roads, or allow cyclists access to places denied to motorists. Paths through parks, at-grade crossings over railways, footbridges, over rivers and hundreds of other ways of bridging road systems barriers that space does not allow a full description of here.

Priorities

In the early stages of developing a bikeway network when the level of bicycle usage is low the bikeway short cuts and bypasses are the most important, because they enable use to be made of the 4,000 miles of quiet residential streets to bypass dangerous sections of road at minimum cost.

Likewise a mapped recommended route system should have been advocated for all areas irrespective of the level of bicycle usage, because it is of such low cost as a safety measure to be economically justifiable everywhere. Recommended routes guides are an ideal way of encouraging cyclists to take advantage of the bicycle's high manoeuvrability and find safe routes for themselves through quiet streets away from the dangerous parts of the road system.

The Philadelphia Commuter Route map produced by cyclists in the Philadelphia Bicycle Coalition is the best example produced so far. These then are the engineering type solutions to promoting safe cycling; there are others equally important.

Bicycle Safety and Education

Thirty two cyclists have been killed on Victoria's roads in the first ten months of 1976 and approximately 40 are expected to be killed by the end of the year which is a large increase over the average figure of 26 cyclists killed for the previous 5 years. This large increase in the annual death rate will continue for several years unless a large scale bicycle safety and education programmes are embarked upon.

Looking at bicycle accidents in the short term is like treating the symptoms of a disease, while leaving the disease intact, but there is one statement in the plan that stands out above all others as isolating the root cause of the disease: "There needs to be a change in attitude to the bicycle and bicycle use by many officials in local and state government. To many the bicycle is just a toy worthy of little concern and its users and insignificant minority. The estimated 450,000-500,000 cyclists in Melbourne hardly constitute an insignificant minority."

The bicycle is a "toy" attitude of mind was also prevalent in the USA at the start of the American bicycle boom and it was responsible for a very large number of cycling fatalities and injuries. How many lives could have been saved if the motor-oriented officials had produced the

right safety programmes at the right time instead of producing too little too late is unknown but it certainly runs into thousands. What the body count in Victoria will be if the appropriate government agencies do not act soon, is anybody's guess.

Correspondence with key members of California's cycling community that represent the interests of 7½ million cyclists and the direct experience of dozens of members of the Bicycle Institute of Victoria, some of whom recently cycled across America, all reinforce the general conclusion that there are three basic elements in solutions to the bicycle safety problem. They are engineering, education and enforcement and they must be applied in a balanced fashion. Another recommendation concerns bicycle safety "The alarming number of accidents to school children highlights the need for an active and continuous bicycle user education programme . . . coupled with such an education course should be a rigorous law enforcement campaign to press home the rules of the road that many young adults are unaware of or do not understand". Again, specific examples of American safety programmes would have been very useful in advocating this policy.

The plan suggests that "bicycle rider education be introduced in schools most of which don't give adequate instruction" but nowhere does it mention the need for using the media or other measures to get at the young adults and older people who are on the roads cycling now. Nowhere does it mention the highly effective on-road safety instruction programmes developed in parts of the US. Nowhere does it mention the need to get rid of a lot of two-wheeled death traps off the road by law enforcement programmes.

Safety for the Under Twelves

The problem of safety for the under twelves is the most difficult because, being children in the true sense of the word, they will play with their bicycles on the roads with great physical vigour and no amount of bicycle education will change a child's attitude all of the time. Some of the time children will not ride in traffic, they will play with traffic or amongst traffic. The only solution is to eliminate through traffic and tame local traffic with reduced speed limits because one cannot stop children from being what they are and it is easier to modify the behaviour of adults in cars.

The vast majority of small children will not be able to use the bicycle paths in the Bikeway Plan even if they were built because they are too widely dispensed for universal access and as a result the large majority of children will "play" with their bicycles on residential streets or they will play with their bicycles while going to and from safe recreational areas.

Another safety aspect not covered in the plan is the effect of introducing bicycle paths without parallel safety and education programmes.

Knowing that no study has been done to establish what needs to be done in the area of safety education and law enforcement it therefore follows that the provision of separate bicycle paths will only worsen the accident problem because while being safe in themselves bicycle paths will encourage the greater use of bicycles on the roads where the accidents happen. Bicycle paths will

generate bicycle traffic at either ends and on connecting roads along the path just as freeways generate car traffic on feeder roads along them and at either end of them and the plan does not spell out either the consequences of generating bicycle traffic or the long term costs and benefits of generating bicycle traffic.

Australia's top bicycle facilities planner, Ludmilla Hawley, readily admits that constraints imposed by planning briefs are one of the reasons why the studies done so far in Australia have almost ignored major issues such as safety education and enforcement of good riding behaviour and concentrated unduly on engineering solutions such as bikeways. Less obvious but more damaging as far as environmentalists in the cycling community are concerned is the assumption made by most academic planners but never openly stated. This assumption is that it is enough to merely predict the aggregate behaviour of people and merely outguess the future, no responsibility is taken for attempting to shape the future and no real attempt is made to imaginatively and creatively show an alternative future. There is no room for vision in planning today.

Why Generate Bicycle Traffic that is the Question

The unanswered question still is "why should any government decide to generate bicycle traffic in an active way; this writer thinks they should but the case has yet to be made in an official document. The fact that more Australians are buying another consumer product, the bicycle is not sufficient reason for planning for them like cars were planned for, just because they were there and to hell with the consequences.

Bicycles don't pollute, bicycles make better use of road space for parking and driving, bicycles improve peoples fitness, bicycles no matter how many of them are used will never require freeways at \$5 million per mile. Bicycles can be used to increase the catchment areas of public transport corridors. Bicycles can enable this country to be less dependant on overseas oil supplies by being used as a substitute for short car trips and used as a means enabling more people to use electrically driven trains. Nowhere in this Bikeway plan are even these few advantages spelled out to the politicians who will have to decide to spend the \$8 million asked for.

One thing that emerges from a detailed examination of the plan, is that we now have a bicycle path plan, and that a bikeway plan is urgently needed to be drawn up by the CRB, the Ministry of Education and ROSTA need to embark on a bicycle safety crash programme and a lot of other issues need examining by other government agencies.

The needs of cyclists have been neglected for so long that there is no way that the present pitiful allocation of research funds into the bicycle transportation and recreation area can result in producing up to date and forward looking concrete proposals for action. Most of the effort has been directed to getting at basic information and there is great difficulty in getting beyond that level, as Melbourne University found when preparing the Bikeway Plan. A much bigger allocation of research funds is needed and the reason why this was not done is that the State Bicycle Committee — which has no active cyclists on it — but is supposed to oversee these matters, does not understand what needs to be done either.