FEASIBILITY STUDY

FOR

THE SOUTH-EASTERN BIKE TRAIL

YOUTH SPORT & RECREATION

Department of Youth, Sport and Recreation

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FOR

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October 1976

State College of Victoria - Rusden

CONTENTS

FOREWORD

Before implementing facilities for bike trails the Department of Youth, sport and Recreation must decide which routes are available.

Alternative routes have to be assessed in terms of their individual credit. The feasibility is based on :- accessibility of the route to facilities used by cyclists.

:- cost of implementing the route

:- number of people who will use the facility

:- safeness of the facility

Acknowledgements:-

This proposal is put forward by:-

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We are students of Rusden State College, Recreational Geography course.

The proposal assesses the favourability of a trail following (i) S.E.C. easement

(ii) railway easement

through Melbourne's southeastern suburbs.

We would like to thank the following people for their help and co-operation:-

Graham Thompson (Dept. Youth Sport & Recreation)

Ken L. Marriott)
) S.C.V. Rusden
John Enright)

Introduction to Bikeway Proposal

A Feasibility Study

Date of Survey Sept 1976

1. Introduction

Area studied: Glen Iris station to the confluence of Dandenong and Blind Creeks.

Two alternative routes investigated:

i) following the S.E.C. easement
ii) following the railway easement to its termination at Glen Waverley station, and then continuing through a residential area into open space to Blind Creek.

The dye line map of the proposed routes shows clearly the routes suggested and facilities accessible to each route. Open space is also indicated.

1.1 Criteria

The criteria adopted for the assessment of each of the bikeways have been covered in detail in two particular publications:

i) Cycle Ways, (Urban & Regional Planning Research) - Canberra 1975.
ii) The Pedal Power - The Bikeway Planning Guide, (Sandy Kerr 1975).

The initial investigation was a physical examination of the proposed trails. The following outlined criteria were kept in mind:-

i) Continuity:- for safety and convenience, the cyclist requires a minimum number of stops and other interruptions. This would provide a smooth flow of bicycle traffic.

ii) Directness:- At this stage, the bikeway plan for Melbourne has been developed in terms of recreational usage. In years to come, however, it is hoped that as the plan becomes fully implemented, a unified network of trails will be established. This will provide the ability to travel to specific destinations by a safe, direct route. Therefore, the route examined must fulfil the long term objectives of bikeway usage.

iii) Grade

The steepness of grade should be proportional to the length of the grade:- i.e. increased steepness requires an increased length of grade. This limits the undulation of terrain which can be used.

The restrictions on grade are as follows:-

	Grade	Length of Grade
	10%	20 metres
	5%	80 metres
Table 1	2%	200 metres

The maximum grade is 10%. If this prerequisite cannot be achieved, it will be necessary to increase either the distance travelled, or the curvature.

iv) Trip Generators

Surveys of Melboune bike usage (Pedal Power, 1975) show that the majority of trips are generated by children. Therefore it should be considered, when planning directions etc., that children may well be the main users of the trail. Because of this, this report seeks to ensure that educational institutions be within close proximity to the trail. Proximity to recreational facilities, places of employment and public transport terminals will also be considered as a priority.

v) Air Pollution

Air pollution is a factor of major importance where biketrails follow heavily used carriageways. This is of consequence in the S.E.C. easement proposal, where the bike-trail runs parallel to the Mulgrave Freeway. The physiological effects of carbon monoxide may act as deterrent to use.

iv) Safety is naturally one of the factors of highest priority. Main roads and road junctions must be suitably equipped to ensure safe crossing. Also because the bike trails serve a dual purpose, for pedestrians and cyclists - carriageways must be clearly directed and separated.

It has been shown (The Bikeway Plan, J. Pike) that the greatest number of bikes are owned by the 10-15 year old group. The next most important age group is 25-30 yrs. These facts are relevant because it is known what age group is most likely to use the trail. The vicinity and accessiblity of schools, recreational facilities and the intersection with transport nodes with the trail, must be considered with relation to safety . Shopping centres, and hospitals for example, are not high on the list of priorities.

2. Methodology

Four different forms of assessment were used in comparing the feasibility of each route:-

i) visual inspection:- this entailed the notation of problems to be overcome at specific sites e.g. clearing, earth works, bridges necessary, crossing of roads, road intersections, signs and instructions needed. In particular:

:- the general aesthetics of the area were recorded

:- problems of traffic conflicts and pollution were assessed.

ii) Photographs of specific sites were taken to illustrate any problems, such as where earth-works would be needed, and any advantages which may exist along the proposed route. This indicated in more explicit terms why one route would be more suitable than another.

iii) A profile of the accepted route was drawn up to pin-point any sites where the gradient was too steep. Such a profile makes measurement of the gradient and grade length simple to assess and gives a general view of the course of the trail.

N.B. The profile incorporates a vertical exaggeration of ten.

iv) The projection of the south-eastern bikeway was mapped to show the location and accessibility of schools to the trail, as well as transport depots (e.g. stations) and recreational facilities which would act as trip generators. The individual sites are numbered according to map locations e.g. Site 1

Suitable 6.8-3.7

3. A Brief Comparison of Bike Trails

Two possible trail routes are assessed below:-

Locations: 1) S.E.C. easement

2) Glen Iris - Waverley Municipal Golf Course.

3.1 S.E.C. Easement

Site 1: 3.5 - 3.5 (ref to dye line map).
Suitable :- flat and grassed
:- pathway available through the golf course across the open space to a pedestrian crossing. This is opposite Ivanhoe Road, crossing Waverley Road. (See Fig 1).
:- Use Ivanhoe Road, via Chadstone High School

(N.B. photographs 1 and 2)

Site 2:-
Suitable :- 4.0 - 4.0
:- slopes down from the road
:- suggest that trail follows curvature of slope to reduce the gradient
:- trail to run to the right (west) of S.E.C. pylons.

(N.B. photograph 4)

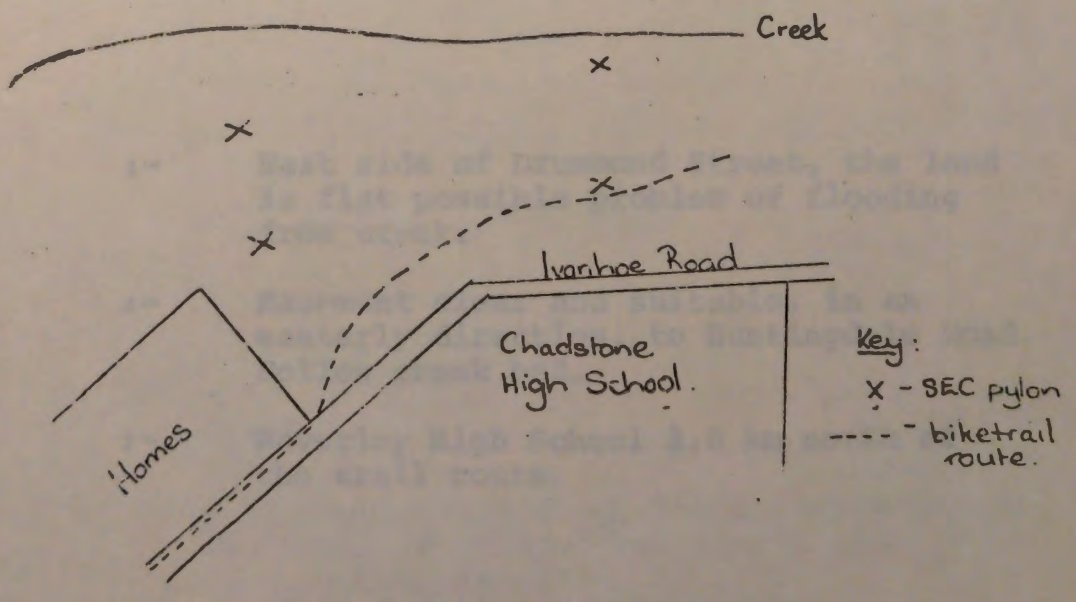


Fig 1.

Site 3

Suitable:- 6.7 - 5.8

:- flat and cleared to Warrigal Road

:- 'Dog Leg' fencing required for crossing to force cyclists to dismount.

:- East side of Warrigal Road to Drummond St., there is already an available pathway. (See Fig 2).

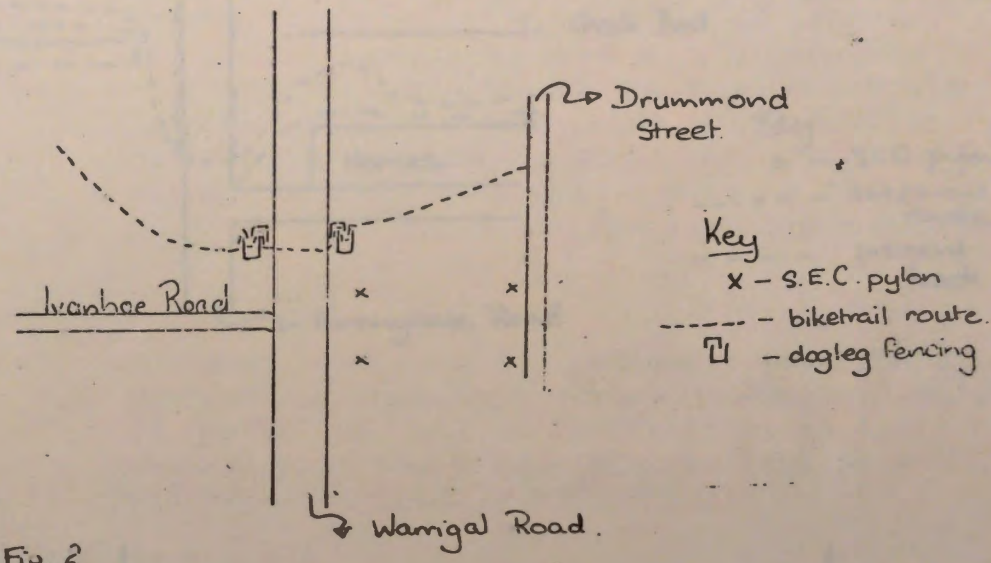


Fig 2.

:- East side of Drummond Street, the land is flat possible problem of flooding from creek.

:- Easement clear and suitable, in an easterly direction, to Huntingdale Road. Follow creek bed.

:- Waverley High School 1.0 km north of the trail route.

Site 4 6.3 - 9.7 Huntingdale Road.

:- Problem of steep slopes on either side of road

:- Suggest cutting across the slope on the west side of the road, and follow an enlarged S-shaped track to reduce the gradient (See Figs. 3&4)

:- Some landfilling would be an advantage

(N.B. Photographs 5 & 6.)

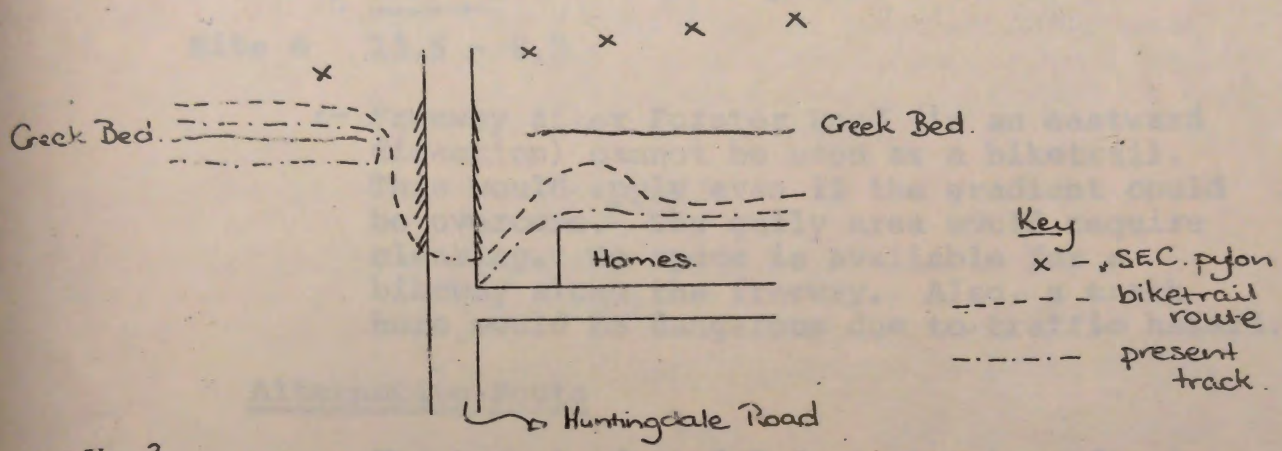
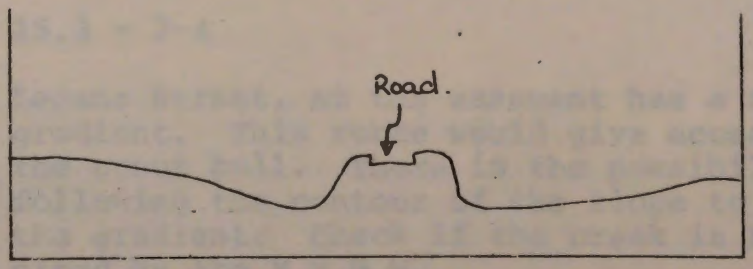


Fig 3.



Profile at Huntingdale Road.

Fig 4.

:- over Huntingdale Road, the easement passes the Mayfield reserve and tennis club. Grade quite steep.

Site 5 6.5 - 11.5 Lewton Court.
N.B. photograph 7. facing west.
:- easement grassed and sloping. The land at the end of Leonie Court, across Stephensons Road is far too steep for a trail. Detouring through side streets necessary.

:- Suggested detour : Leonie Avenue - Oakern Street (turn right) Dales Road, Gnerwin Street to Allison Street arriving at the Mulgrave Freeway, west of Stephensons Road.

Site 6 13.5 - 8.5

:- Freeway after Forster Road (in an eastward direction) cannot be used as a biketrail. This would apply even if the gradient could be overcome. The gully area would require clearing. No space is available for a bikeway along the freeway. Also, a track here would be dangerous due to traffic hazard.

Alternative Route

:- Forsters Road at S.E.C. easement produces a problem of crossing the road. Clearing would be needed, as well as landfilling, on the west side of the road. The gradient on both sides of the road is too great.

Site 7 15.3 - 7-4

:- Legane Street, at the easement has a reasonable gradient. This route would give access to the scout hall. There is the possibility of following the contour of the slope to reduce the gradient. Check if the creek is being piped by the M.M.B.W.

Site 8 15.5 - 7.5 N.B. Photographs 8 and 9.
Unsuitable :- site of the planned Nottinghill S.E.C. terminal station.
:- investigations could be made to determine whether the use of this land is possible
:- It would be impossible to cross the freeway at this point.

Photograph 8 - earth works needed
9 - no room for biketrail (see arrow).

Easement becomes steeper towards Blackburn Road.

Site 9 16.5 - 7.3

:- Follow Toorroodun Street around behind Pinewood State School. A driveway connects Toombah Street and Pinewood Shopping Centre.

:- Where the easement crosses Blackburn Road, there is a nursery. There is a laneway connecting Blackburn Road with the park behind the nursery.

:- This land is very flat and crossing Janice Road (18.4 - 7.3) is no problem. The east side of Janice Road (which runs N - S) drops steeply to Ivanhoe Street. This plot is too steep to consider a bikeway.

Site 10 NB Photograph 10

Unsuitable :- easement becomes private land

:- easement is not vacant east of Springvale Road, past Drentwood Primary School. Land is available through Corpus Christie Police Academy.

:- East of Watson Road, the land is not vacant.

:- At Mt View Road, (23.6-8.8) there is no access to the easement; houses are built on the easement.

:- At Lum Road (25 - 9) the gradient was so steep that the projection of this route was abandoned and the alternative route taken up for consideration

3.2 B <u>Railway Easement to Blind Creek</u>

(Glen Iris - Glen Waverley Stations)

This trail will be sited from Waverley towards the City

Site 1: 27.2 - 8.4 NB photographs 11 & 12

Suitable: The golf course off Jells Road. Bikes are not permitted on the course at present; the land is suitable. Land at the north end of Northam Street is flat (26.6 - 7.4) Chapman Boulevard (26.5 - 6.5) is flat, with a low volume of local traffic. The trail could follow around the edge of the green belt, reserved as part of the drainage basin. This belt follows a negotiable incline towards the Primary School on Gallaghers Road.

Site 2

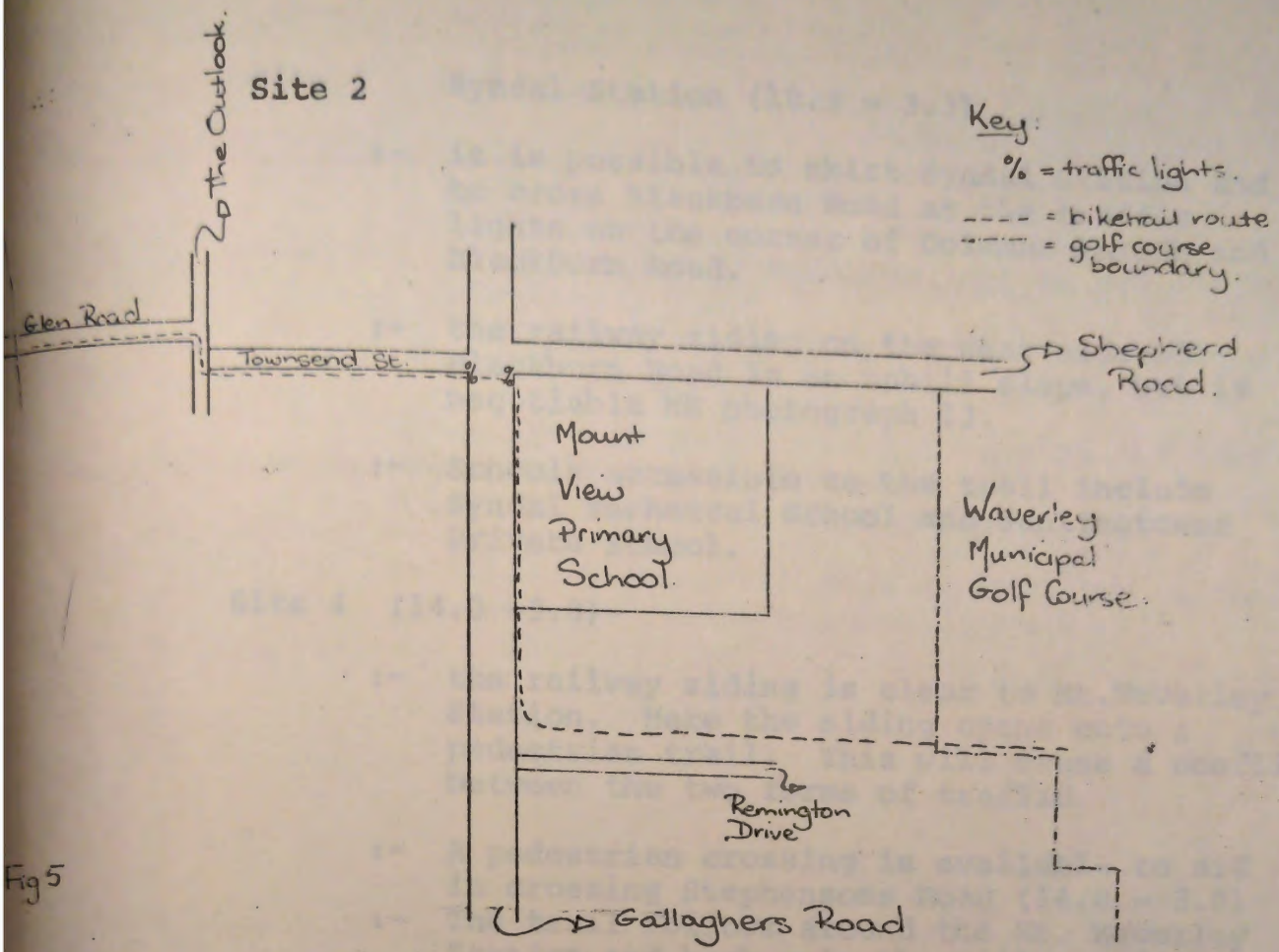


Fig 5

:- As shown in fig 5, the route to Townsend Street is direct and is facilitated by the presence of a pedestrian crossing outside the primary school. Glen Road is negotiable to Springvale Road (21.8 - 4.5). A pedestrian crossing enables easy crossing of Springvale Road (see fig 5).

:- Traffic within the Glen Waverley Shopping Centre (21.5 - 4.5) will cause problems, as there is no space available for a separate bikeway.

Site 2A Glen Waverley Station (21.3 - 4.3)

:- trail follows along the left side of line (facing west) along Coleman Parade to Blackburn Road

:- Easement is approximately 20 metres wide, grassed with trees. The easement is flat.

Site 3 Syndal Station (18.3 - 3.3)

:- it is possible to skirt Syndal Station and to cross Blackburn Road at the traffic lights on the corner of Coleman Parade and Blackburn Road.

:- the railway siding on the west side of Blackburn Road is an uphill slope, but is negotiable NB photograph 13.

:- Schools accessible to the trail include Syndal Technical School and Huntingtower Private School.

Site 4 (14.0 -3.0)

:- the railway siding is clear to Mt.Waverley Station. Here the siding opens onto a pedestrian trail. This will cause a conflict between the two forms of traffic.

:- A pedestrian crossing is available to aid in crossing Stephensons Road (14.0 - 3.0)

:- The trail follows around the Mt. Waverley Station and back onto the railway siding

: Siding continues flat and grassy to Jordanville Station.

:- At Jordanville station the biketrail crosses a car par.

:- Pedestrian lights are available at Huntingdale Road. (10.3 - 2.5)

:- The Siding, following Railway Parade, is wide, flat & grassed. There is evidence of use of this siding as a pathway.

:- The railway follows over a bridge crossing Power Avenue. The bike way can cross the road using a bike crossing. There is a problem of visibility of traffic as the bridge is on a curve in Power Avenue. (See Fig 6).

NB Photograph 15.

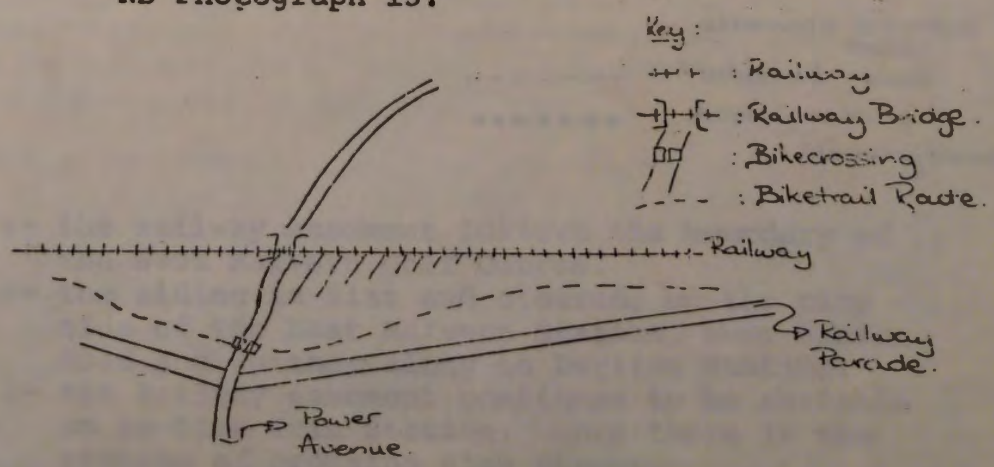


Fig 6

Possibly need lights and 'dogleg' fence.

Site 5 (6.0 - 3.0) NB photograph 3 (looking towards Warrigal Rd.)

:- Railway line crosses Warrigal Road by bridge. The easement becomes a footpath. Pedestrian operated lights are available to aid crossing Warrigal Road to Holmesglen Station.

:- The rail easement continues around Holmesglen Station.

Up until this point, we have been on the South side of the railway line.
Follow the siding to East Malvern Station

:- Cross to the north side of the line on the west side of the station. (See Fig 7.)

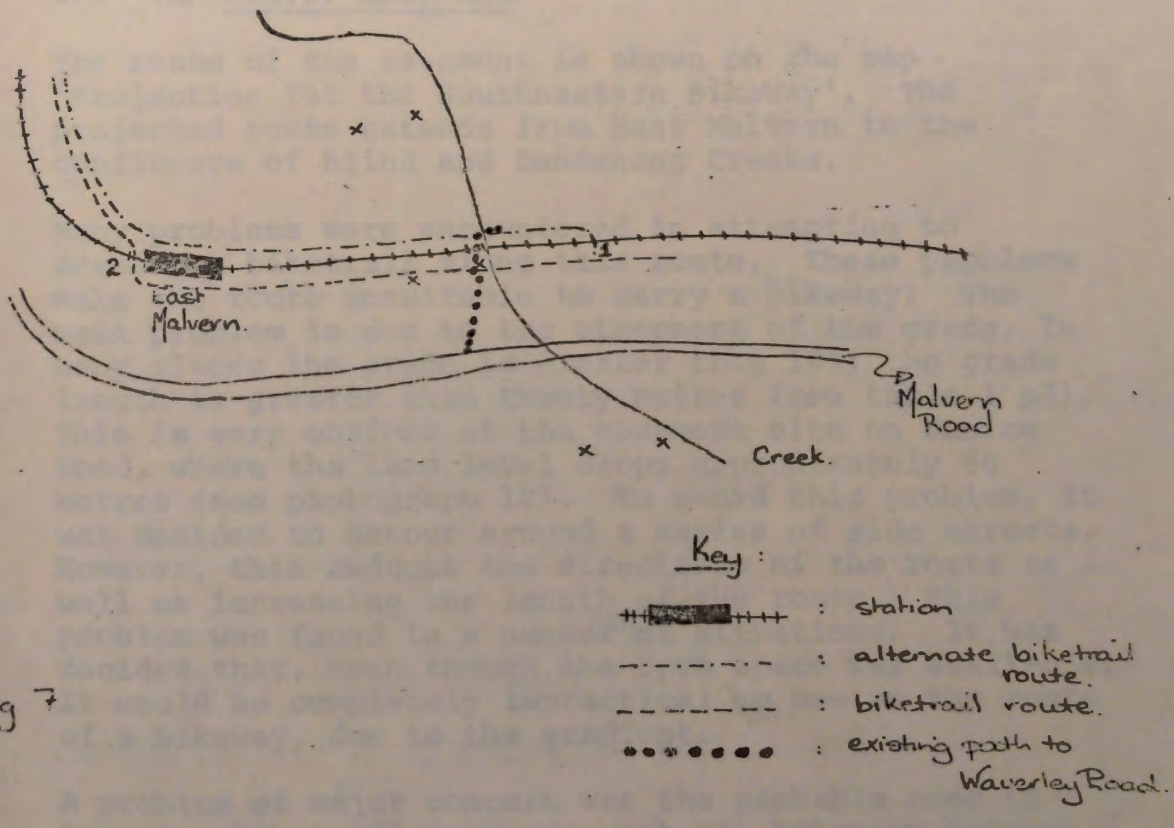


Fig 7

:- the railway easement follows the boundary of the East Malvern Golf Course.

:- the siding is flat and cleared, on the city side of the East Malvern Station, over Winton Road and further along to Darling Station.

:- the Railway easement continues to be suitable up to Glen Iris Station. Here there is the problem of crossing High Street.

The entire length of this proposal is supported by an easement which is wide enough to cater for the needs of both pedestrians and cyclists on the dual-purpose trail.

4. Discussion

In this section, the two alternatives will be considered in terms of the criteria discussed in the introduction. Problems which are present will be overcome by a variety of methods.

The types of problems which exist include:-

(i) gradient
(ii) conflicts with alternate land use
(iii) crossing of roads
(iv) extent of land works needed
(v) aesthetics
and(vi) direction of routes.

4.1 (A) S.E.C. Easement

The route of the easement is shown on the map 'Projection for the Southeastern Bikeway'. The projected route extends from East Malvern to the confluence of Blind and Dandenong Creeks.

Many problems were encountered in attempting to develop a biketrail along this route. These problems make the route unsuitable to carry a bikeway. The main problem is due to the steepness of the grade. In many places the grade is greater than 10%; the grade length is greater than twenty metres (see table 1 p2). This is very obvious at the easement site on Janice Road, where tha land level drops approximately 60 metres (see photograph 10). To avoid this problem, it was decided to detour around a series of side streets. However, this reduces the directness of the route as well as increasing the length of the route. This problem was faced in a number of situations. It was decided that, even though the open space was available, it would be completely impractical to use as the route of a bikeway, due to the gradient.

A problem of major concern was the probable need to have the biketrail converge with the Mulgrave Freeway. This would raise a variety of problems; exhaust fumes, heavy traffic and the actual positioning of the bike-trail are all difficult problems to resolve. Problems such as these initially occur at Forster Road, Mt. Waverley. There are the physical problems of the unavailability of area along the freeway boundaries and the fact that clear land does not exist along the entire length of the easement. In Glen Waverley, for example, private land, on which homes have been built, encroaches right up to the actual S.E.C. pylons.

That is, the pylons stand in people's backyards. Even though access gates are available to facilitate maintenance of the pylons, access would not extend to the passageway for a biketrail.

At the intersection of the S.E.C. easement and Huntingdale Road, there is a deep gully. Here it would probably be necessary to do some landfilling operations for this route to prove to be acceptable. Such a problem again arose at Forster Road on the west face of the gully. The only way a biketrail could pass through this area would be by the building of an overpass. This, of course, is extremely costly and quite impractical.

The safety of cyclists is of premium importance. Because of this there must be adequate provision made for crossing major traffic arteries by means of pedestrian crossings. Special 'dogleg', fence configurations should be erected to force riders to dismount before crossing roads.

In realistic terms, it would be virtually impossible to employ a biketrail following this route along the S.E.C. easement. If one was to be developed it would have to be detoured in many sections. Also, large sums of money would have to be made available to provide the necessary earth works and other gradient reducing techniques.

4.2 Points related Specifically to the Photographs

Photograph 1: This picture shows the suitability of this section to biketrail usage. It should be noted that the track through the golf course in the background has already been constructed.

Photograph 2: The arrow marks the point where the route would rejoin the track. The area is level and wide enough to provide for a biketrail. There would not be any drainage problems.

Photograph 4: It is suggested that the route follow a path to the left of the trees shown. The route should join the track beyond this point, and continue along the path already available.

Photograph 5: This shows the problem of the steepness of the grade. Here it would be necessary to facilitate expensive earth works in order to reduce the gradient. There is also the difficulty of crossing Huntingdale Road.

Photograph 6: Shows problems similar to those expounded in photograph 5, on the opposite side of Huntingdale Road.

Photograph 7: This shows the suitability of this section. The proximity to recreational facilities (tennis courts and oval) should be noted.

Photographs 8 & 9: This shows the lack of space to provide for a track to run parallel to the freeway. (see below the marked arrow). It also shows that even though the slope is more gentle, the grade length is far greater than the maximum length set out in the criteria (see p.1 section 1.1).

Photograph 10: The gradient of land between Janice Road and Ivanhoe Street is illustrated here. This slope is completely unrealistic in terms of negotiation using a bike. Even riding down the slope could be dangerous as there is a road at the foot of the grade. Also note that the easement is used as private land and has been fenced off despite the presence of access gates (see arrow centre).

The proposal of the S.E.C. easement was disgarded just beyond this point as very few criteria were satisfied. This was mainly because the slopes were far too steep, some heavily wooded and other sections fenced off.

4.3 Railway Easement Proposal
Related Specifically to the Photographs

Photograph 3: This shows the East Malvern siding as suitable for a trail. This is the point where it would be possible to cross the railway line. (see on p 10, Fig.7 No 1). A 'dogleg' crossing should be put here to force riders to dismount.

Photograph 15: The width of the easement here is obvious from the photograph. It can be seen that there is sufficient space to place a pedestrian crossing on the easement. Note the bridge below the arrow in the centre of the photograph.

Photographs 13-14: This shows the suitability of the easement west of Blackburn Road.

Photographs 11-12: This shows the suitability of the open space adjacent to the Waverley Golf Course and Mount View Primary School. This land is part of a drainage area and therefore this land cannot be be built upon or subdivided. As this land adjoins the golf course the biketrail can be continuous from here (28.8 - 7.8) to Glen Iris Station, off the map, west of the point 1.0 - 0.5.

4.4 Discussion of the Railway Easement Proposal

This biketrail, in our opinions, aligns well with the criteria discussed in the introduction.

The gradient of the route is easily ameniable to pleasurable riding. The route is aesthetically pleasing and has only a few minor problems associated with it. When compared with the S.E.C. easement route, there are fewer major roads to be crossed. Most of these roads are already equipped with pedestrian operated lights. Where road crossings are not controlled, the roads carry a low volume of traffic. In such a situation, for example where the route intersects with Power Avenue, it is suggested that the cyclist give way to traffic. The crossing should be marked using the crossing blocks, over the road, as is explained in "Cycle Ways"(p 34). Warning signs, to the motorist, are necessary to indicate to him, that he is approaching a Cycle Way crossing.

The bikeway also needs warning signs on the approach to the Power Avenue crossing. The types of signs needed would include the following:- "Give Way Ahead", "Give Way", "Stop","Pedestrians" etc. Similarly at Springvale Road, and Blackburn Road, the cyclist needs warning signs at the approach to pedestrian crossings controlled by traffic lights. Other signs that can be used where appropriate are:- "Beginning of Bikeway", "End of Bikeway" "Dismount", "Slippery" and "Curve". These signs should be illustrated with the correct notation.

Where cycle/pedestrian conflict exists (east of East Malvern Station and the west side of Power Avenue crossing) it is suggested that the pathway be wider and the cyclists be restricted to one side. The Albury-Wodonga Development Corporation suggest three ways to divide the path and hence divide the two forms of traffic. These suggestions were forwarded in the publication 'Proposal for Multi-purpose Trails' by the Corporation mentioned above.

1) Guttered Bikeway

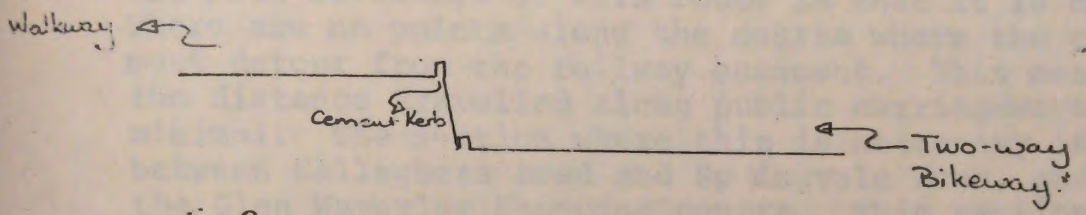


Fig 8.

2) Cemented Stone Division

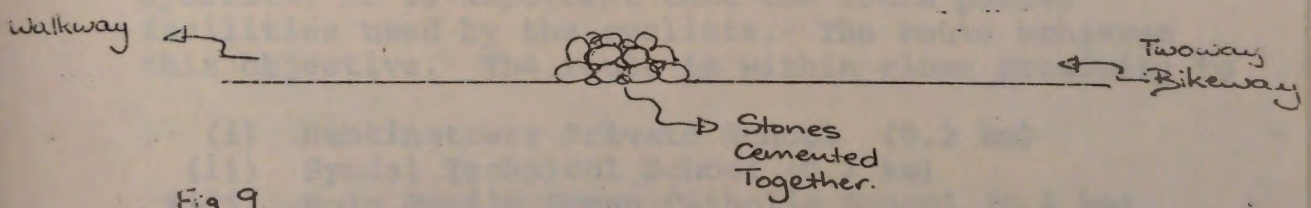
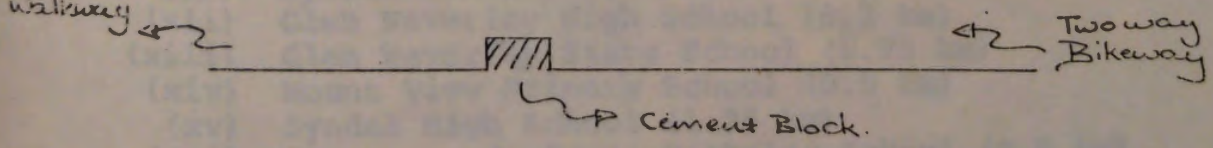


Fig 9.

3) Raised Cement Block Division



The block of cement should be approximately 10cm³ in dimension

Fig 10.

Signs are required to direct cyclists and pedestrians into the proposed laneways. To cope with two-way cycle traffic and pedestrians, the paths must be a minimum total width of three metres; 1/3 width for pedestrians and 2/3 width for cyclists.

In some sections of the bikeway, such as where the trail crosses Warrigal Road, an arrangement must be made to force cyclists to dismount before reaching the footpath. This would prevent the cyclist hazard to pedestrians. The suggestion is to erect a 'Warning: Stop Ahead' and 'Stop' sign before the cyclist reaches the footpath.

The main advantage of this route is that it is direct. There are no points along the course where the cyclist must detour from the railway easement. This means that the distance travelled along public carriageways is minimal. The section where this is necessary is between Gallaghers Road and Springvale Road, and through the Glen Waverley Shopping centre. This section is relatively free of heavy traffic except within the shopping centre. A pedestrian crossing is available at the corner of Glen Road and Springvale Road (21.8 - 4.4). Uncontrolled pedestrian crossings operate within the shopping centre.

As we are primarily considering the usefulness to cyclists, it is important that the route passes facilities used by the cyclists. The route achieves this objective. The route is within close proximity to

(i) Huntingtower Private School (0.3 km)
(ii) Syndal Technical School (0.2 km)
(iii) Holy Family Roman Catholic School (0.1 km)
(iv) Avila Roman Catholic School (0.1 km)
(v) Wesley College Junior School (0.1 km)
(vi) Chadstone High School (0.4 km)
(vii) Chadstone State School (0.5 km)
(viii) Jordanville South State School (0.8 km)
(ix) Waverley High School (1.0 km)
(x) Mt. Waverley State School (0.6 km)
(xi) Syndal South State School (0.8 km)
(xii) Glen Waverley High School (0.2 km)
(xiii) Glen Waverley State School (0.75 km)
(xiv) Mount View Primary School (0.0 km)
(xv) Syndal High School (1.25 km)
(xvi) St. Leonards Roman Catholic School (0.5 km)

as well as a large number of open space areas and sporting facilities. The proximity to so many schools will generate a large number of trips.

The distance in bracket is an approximation of the most direct route from the bikeway to each particular school.

Because the bikeway passes a number of railway stations, commuters to Melbourne can make use of the bikeway by riding part of the way to work. Provision must be made, at stations and bus terminals, to accommodate bicycles. Interseption with alternate transport methods will act as a trip generator.

Another advantage of this route is that the problem of air pollution from heavy traffic does not arise. Also, most of the route is generously wooded; this reduces the problem of air pollution even further.

4.5 Problems associated with the Railway Easement Route

The problems with this route are minor. There may be a problem of noise pollution from passing trains. However, this noise is not consistent, especially in off peak periods. The noise factor would reduce the value of the route in terms of recreational appeal. For those people who will use the bikeway as a transport means the effect of the noise from passing trains is not anticipated to be very great.

As many children will be using the route, careful consideration must be given to railway crossings, shopping centres and car parks when planning safety precautions. It is suggested that cyclists be asked to dismount. This situation arises at Mt. Waverley and Glen Waverley Shopping Centres, and Jordanville and East Malvern stations.

As stated before, the cyclist will be required to dismount to ensure the safety of both the pedestrian and the cyclist. This interrupts the continuity of riding but it is, unfortunately, a necessary concession for safety's sake. This will be required at Springvale, Gallaghers, Blackburn, Stephensons, Huntingdale, Power, & Warrigal Roads. Continuity of riding will most probably also be interrupted through Glen Waverley Shopping Centre.

5. Summary of Discussion: S.E.C. easement vs. Railway

1) The S.E.C. easement was rejected because:-

a) gradient was too steep.

b) of conflict between Mulgrave Freeway and the S.E.C. easement, for direction of route for bikeway.

c) of the physical problem of availability of land along the freeway.

d) open space is not available along the total easement.

e) of the problem of crossing gullies

f) of the need for expensive landfilling works.

g) of the problem of crossing uncontrolled main roads.

2) The Railway Easement was accepted because:-

a) the major criteria were satisfied.

b) the route is aesthetically pleasing.

c) there is a reduced problem of crossing roads.

d) the route is very direct; no detouring necessary.

e) of close proximity to many schools and recreational facilities

f) the route passes terminals of other transportation methods e.g. bus, train.

6. Conclusion

The advantages available from the development of the railway easement route far outweigh the disadvantages. In view of the mounting transport crisis, coupled with the increasing problem of air pollution from car exhausts, the feasibility of developing and maintaining bikeways is a highly practical and economic proposition. Bicycles are inexpensive to obtain, cheap to run and provide a lot of enjoyment when they are used for either transportational or recreational purposes.

It seems clear that the acceptance of proposals such as this one, is highly beneficial both at a community level and at an individual level.

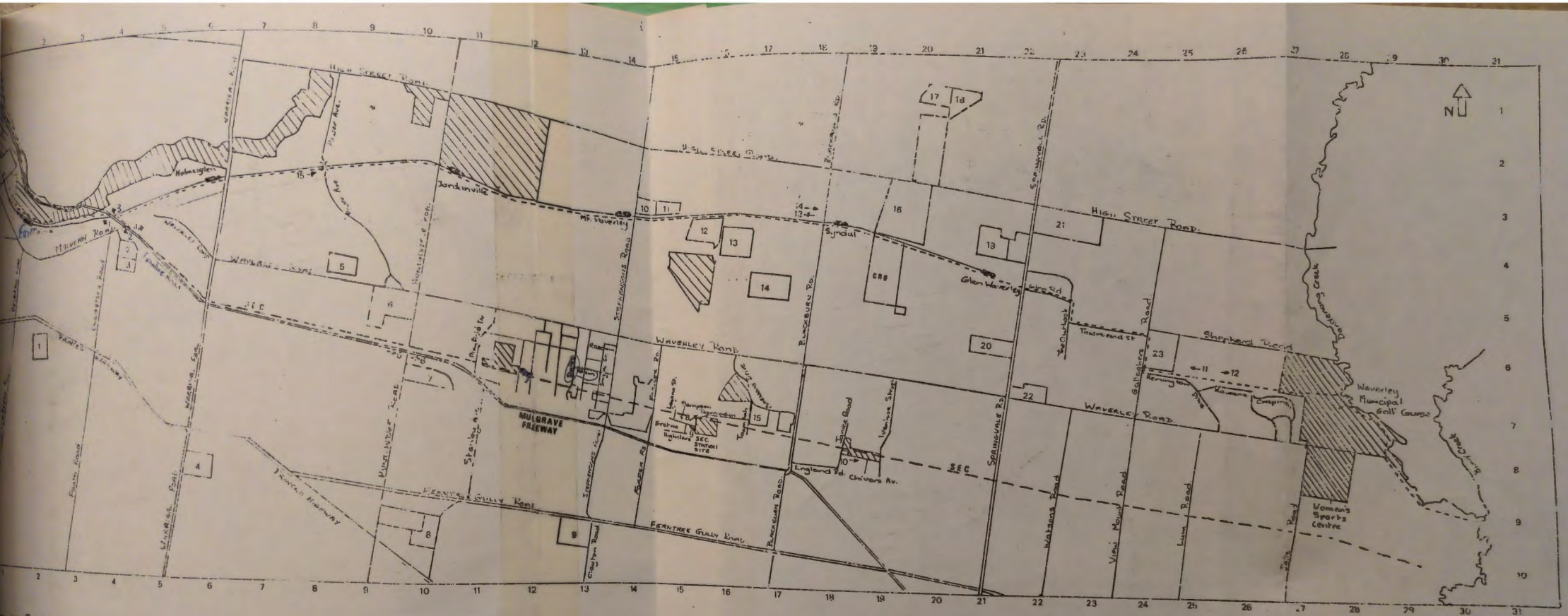
7. APPENDIX: REFERENCES

"Cycle Ways" - Urban and Regional Planning Research (Canberra 1975)

"The Pedal Power" - Bikeway Planning Guide (Sandy Kerr 1975)

"The Bikeway Plan" - J. Pike

"Proposal for Multi-purpose Trails" - The Albury Wodonga Development Corporation.



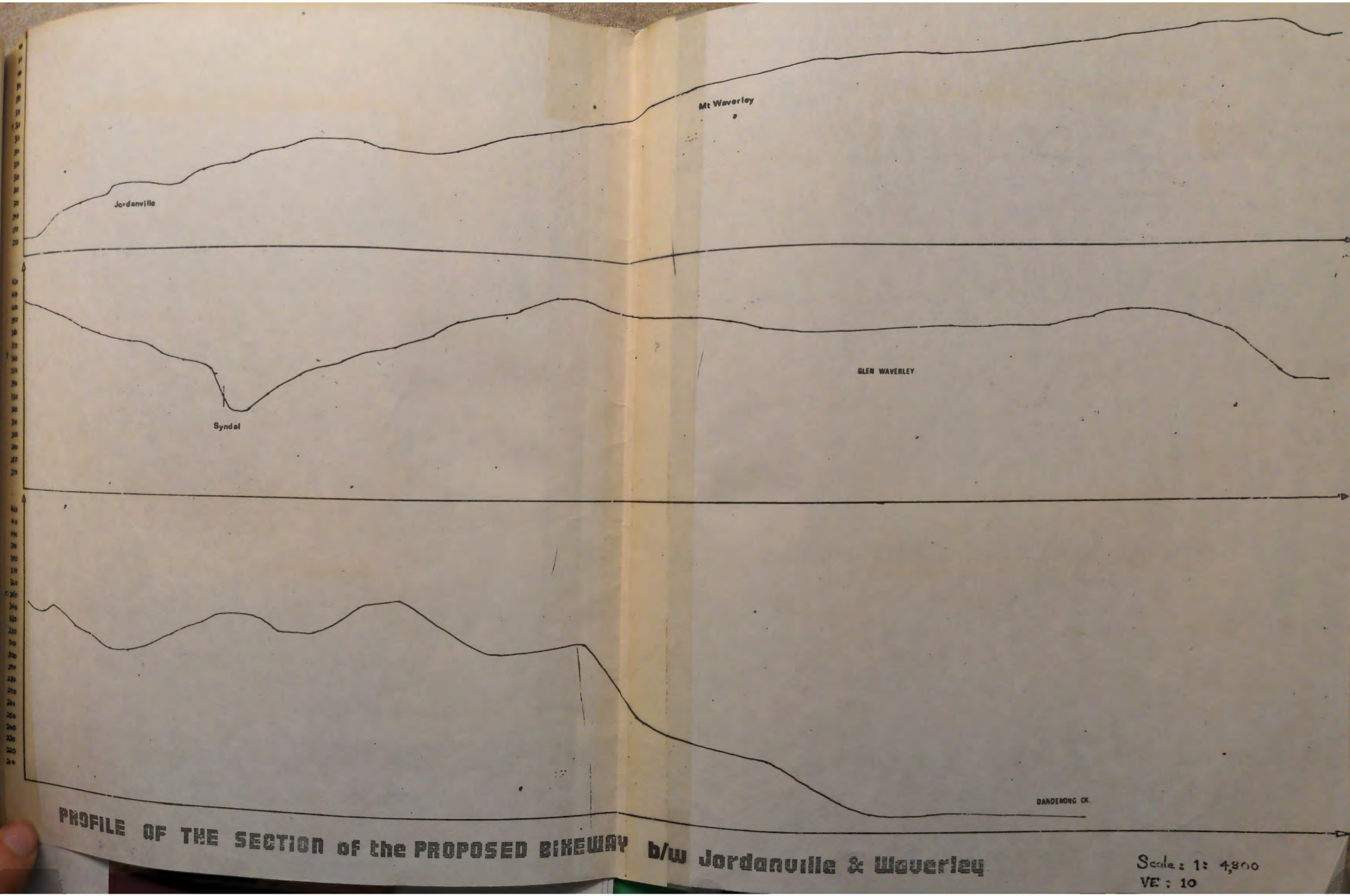
PROJECTION FOR SOUTH-EASTERN BIKEWAY

Scale: 0.5 km, 400 metres, ¼ mile

Key: open space; suggested route alternatives related to referral photograph; SEC easement as alternative bikeway route

Schools

1 Murrumbeena State School
2 Chadstone High School
3 " Primary School
4 Oakleigh State School
5 Jordanville South State School
6 Waverley High School
7 Duncan Heights State School
8 East Oakleigh State School
9 Arnold State School
10 Avila R.C. School
11 Holy Family R.C. School
12 Huntingtower School
13 Syndal Technical School
14 " South State School
15 Pinewood State School
16 Wesley College (Junior)
17 Syndal Primary School
18 " High School
19 Glen Waverley High School
20 St. Leonards R.C. School
21 Glen Waverley Heights State School
22 " " State School
23 Mount View Primary School



PROFILE OF THE SECTION of the PROPOSED BIKEWAY b/w Jordanville & Waverley

Scale: 1: 4,800
VE : 10

PHOTOGRAPHS 1 - 15

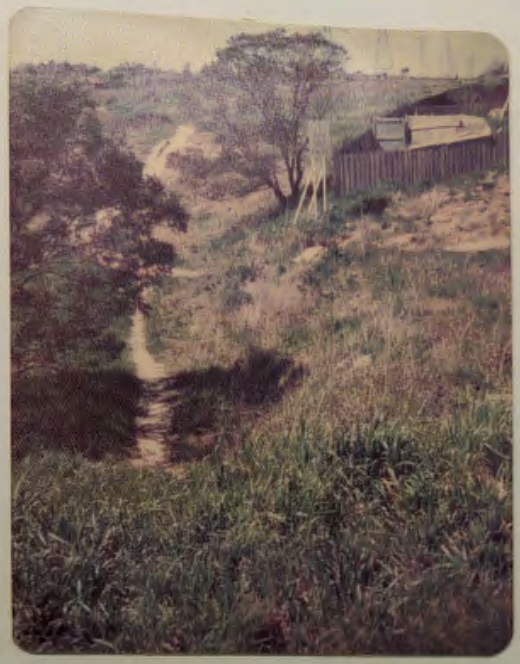
S.E.C. EASEMENT PROPOSAL

1. WAVERLEY ROAD, facing north. Map 3.5 N, 3.5 E

2. WAVERLEY ROAD, facing south. Map 4.0 N, 4.0 E

4. EASEMENT FROM IVANHOE STREET, facing south-east. Map 3.9 N, 4.5 E

5. SLOPE RISING TO HUNTINGDALE ROAD, facing east. Map 5.8 N, 9.7 E



SLOPE DROPPING AWAY FROM HUNTINGDALE ROAD, facing east. Map 5.9 N 9.9 E

HAYFIELD RESERVE, facing west. Map 6.8 N, 12.8 E

E.C. EASEMENT PROPOSAL

S.E.C. EASEMENT, north side. Map 7.4 N, 15.3 E

9. S.E.C. EASEMENT, south side. Map 7.4 N, 15.3 E

0. EASEMENT BETWEEN JANICE ROAD and IVANHOE ST., GLEN WAVERLEY,
facing east. Map 8.0 N, 18.4 E

ILWAY EASEMENT PROPOSAL

RAILWAY BETWEEN EAST MALVERN AND HOLMESGLEN STATIONS,
facing east. Map 3.5 N, 3.8 E

RIDGE OVER POWER AVE.
facing east. Map 2.8 N 7.8 E

ILWAY EASEMENT PROPOSAL

. WEST SIDE OF BLACKBURN RD.,
facing west. Map 3.1 N 17.9 E

. WEST SIDE OF BLACKBURN RD.,
facing east. Map 3.1 N 17.9 E

WAY EASEMENT PROPOSAL

BEHIND MOUNT VIEW PRIMARY SCHOOL,

facing east. Map 6.0 N 24.3 E

MOUNT VIEW PRIMARY SCHOOL,

facing west. Map 6.2 N 25.5 E