

1.

FUTURE DEVELOPMENT OF THE MELBOURNE TRAMWAY SYSTEM, WITH PARTICULAR
REFERENCE TO POSSIBLE IMPROVEMENTS TO THE FIXED PLANT OF THE CENTRAL
BUSINESS DISTRICT.

By Graeme S. Breydon.

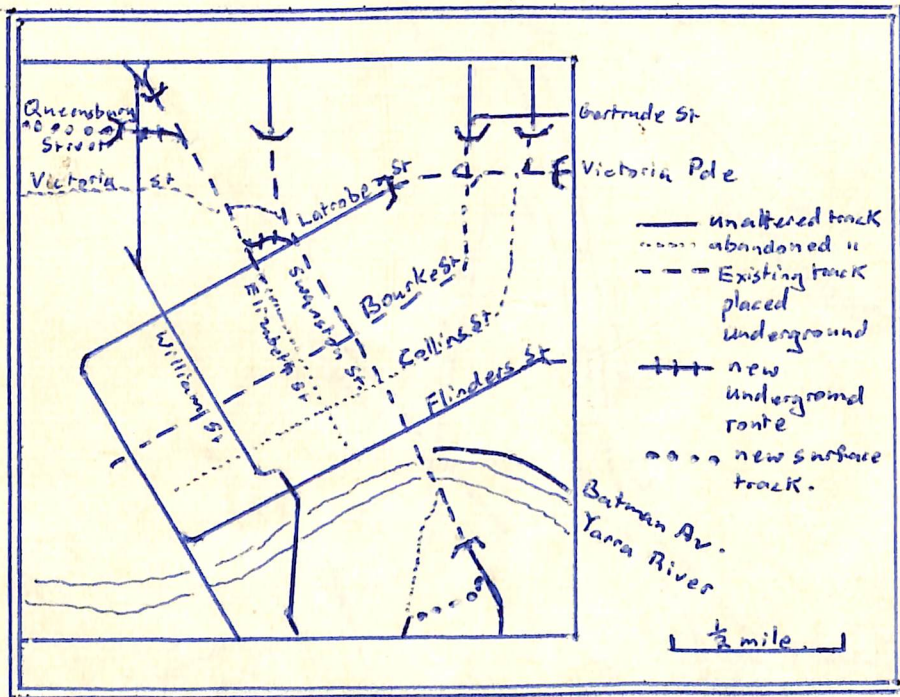
Jan. 1972.

INTRODUCTION

For many years proposals for the improvement of the Melbourne & Metropolitan Tramways Board services, other than those concerning replacement of rolling stock, have generally centered on the possibility of placing some or all services in the Central Business District underground. The M. & M. T. B. itself displayed interest during 1962 (shortly after the return of the then chairman, Major-General R. J. H. Risson) by presenting a report to the Melbourne City Council, and in other ways (including comment in the annual report, and construction of a model of an underground intersection between two tramways)

The shortcoming of these proposals was that the existing arrangement of routes and services was assumed to be suitable and although the engineering aspects of service improvements were resolved the economics of the proposals received scant attention. The 1962 scheme involved the grade-separation of Swanston and Bourke streets and the closure of certain other city tramlines and subsequently alteration to the St Kilda road tracks has been incorporated in the proposal (see figures).

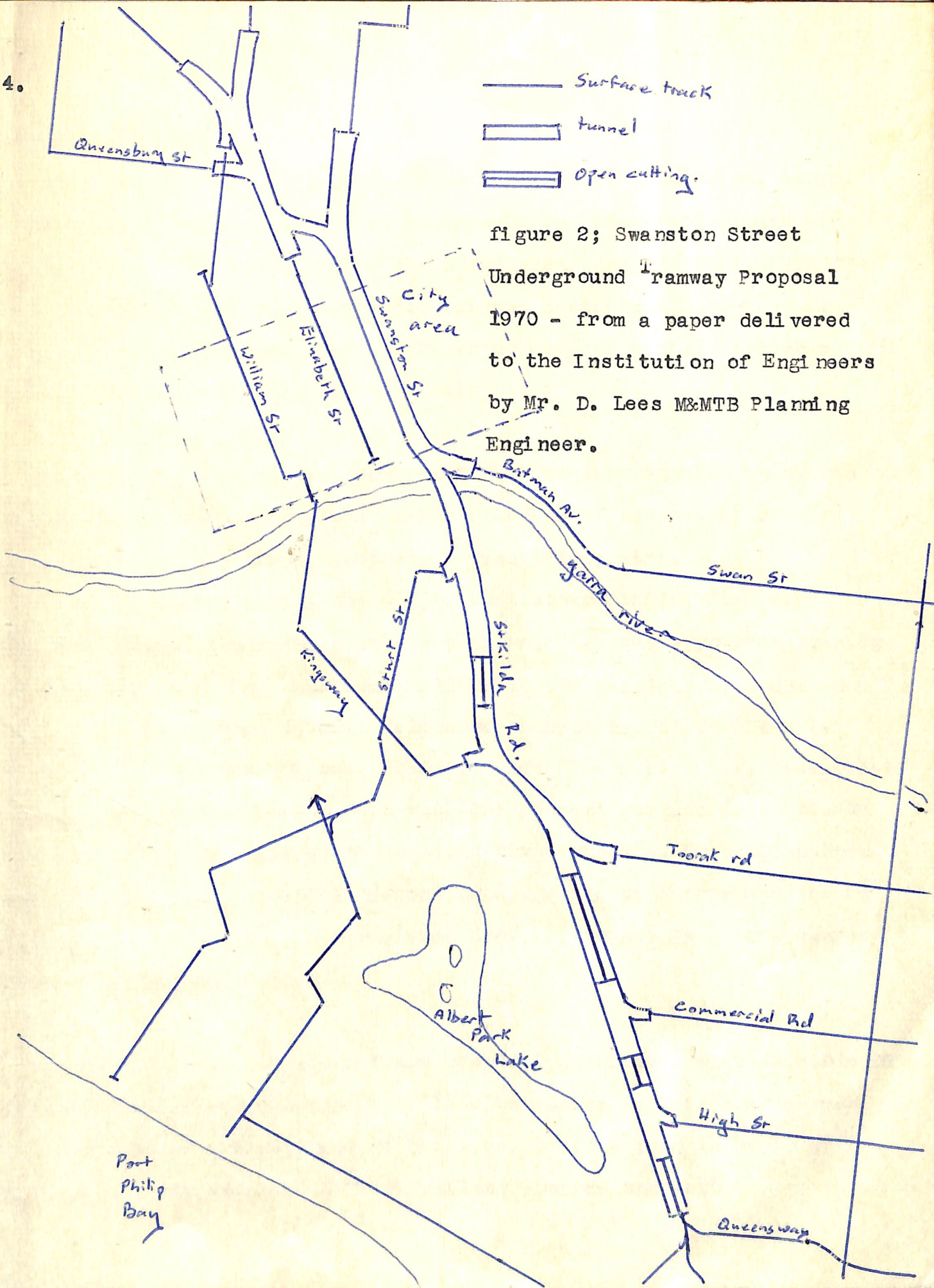
figure 1; Map of tram subways for the city of Melbourne as proposed by the Melbourne & Metropolitan Tramways Board in 1962.



4.

- Surface track
- ▭ tunnel
- ▩ open cutting

figure 2; Swanston Street
Underground Tramway Proposal
1970 - from a paper delivered
to the Institution of Engineers
by Mr. D. Lees M&MTB Planning
Engineer.



THE STARTING-POINT

The purpose of the C. B. D.-suburban tramways is to provide, among other things, transport between inner-suburban homes and places of employment in the city. Within the inner area they are called upon to act as distributors from the major railway stations and parking facilities. The underground railway now under construction will influence this latter role but will not eliminate it.

The need for improvement derives from a requirement for increased capacity and for improvements in the standard of service (including frequency, journey times, comfort, accessibility, etc).

Of the routes entering the C. B. D. that along StKilda Road and Swanston Street poses the greatest problem. The predicted tram loading in Swanston st during peak hour will be 10,500 passengers, compared with the 1964 peak of 4,750. (Melbourne Transportation Committee). Even if the expected increase does not occur there is little possibility of raising the service standard with the present surface level tracks and numerous grade intersections along these streets. In StKilda Road conflict with motor traffic proceeding along the same thoroughfare is not serious while in Swanston street conflict arises from this source as well as cross-traffic.

Other than grade-separation the proposal considered most feasible by the Transportation committee for the elimination of this bottle-neck is diversion of a proportion of passenger traffic from trams to a railway via the extended StKilda railway towards the east.

6.

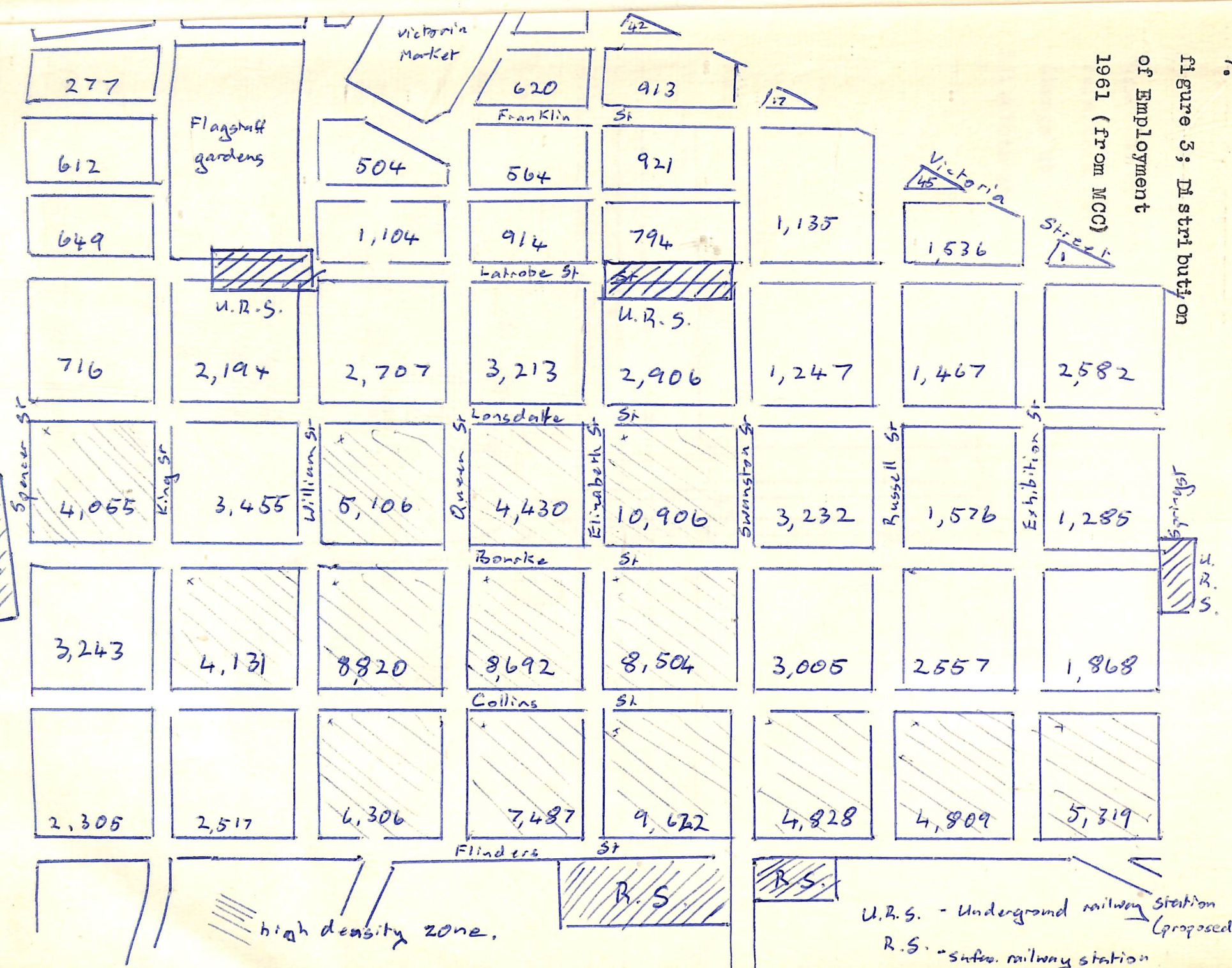
This railway would not resolve the problem of distributing passengers upon reaching the C.B.D. as the StKilda railway will not have direct access to the underground loop.

Question number one must be "Where do passengers wish to go?". As the answer is to their work places the question then becomes one of the location of workplaces within the Golden Mile. The answer can be obtained from the Melbourne City Council survey (1962) which indicates the greatest density was in the area bounded by Flinders, William, Lonsdale and Swanston streets. The establishment of Flagstaff and Museum railway stations may result in a growth to the north however even then the major tramline would only be on the fringe of the high-density area.

Elizabeth street, with its tramway, passes through the centre of this zone but the trams terminate at Flinders street with no connection to the south. Already this carries a backloading from the station and with improvement to the interchange facilities could be intergrated with the railway proposal mentioned above. The redevelopment of Flinders Street Railway Station will incorporate a Plaza level above the platforms onto which the tramline could be extended by way of a ramp comencing south of Collins street. Stairways to the platforms from the plaza would provide interchange facilities between trains and trams.

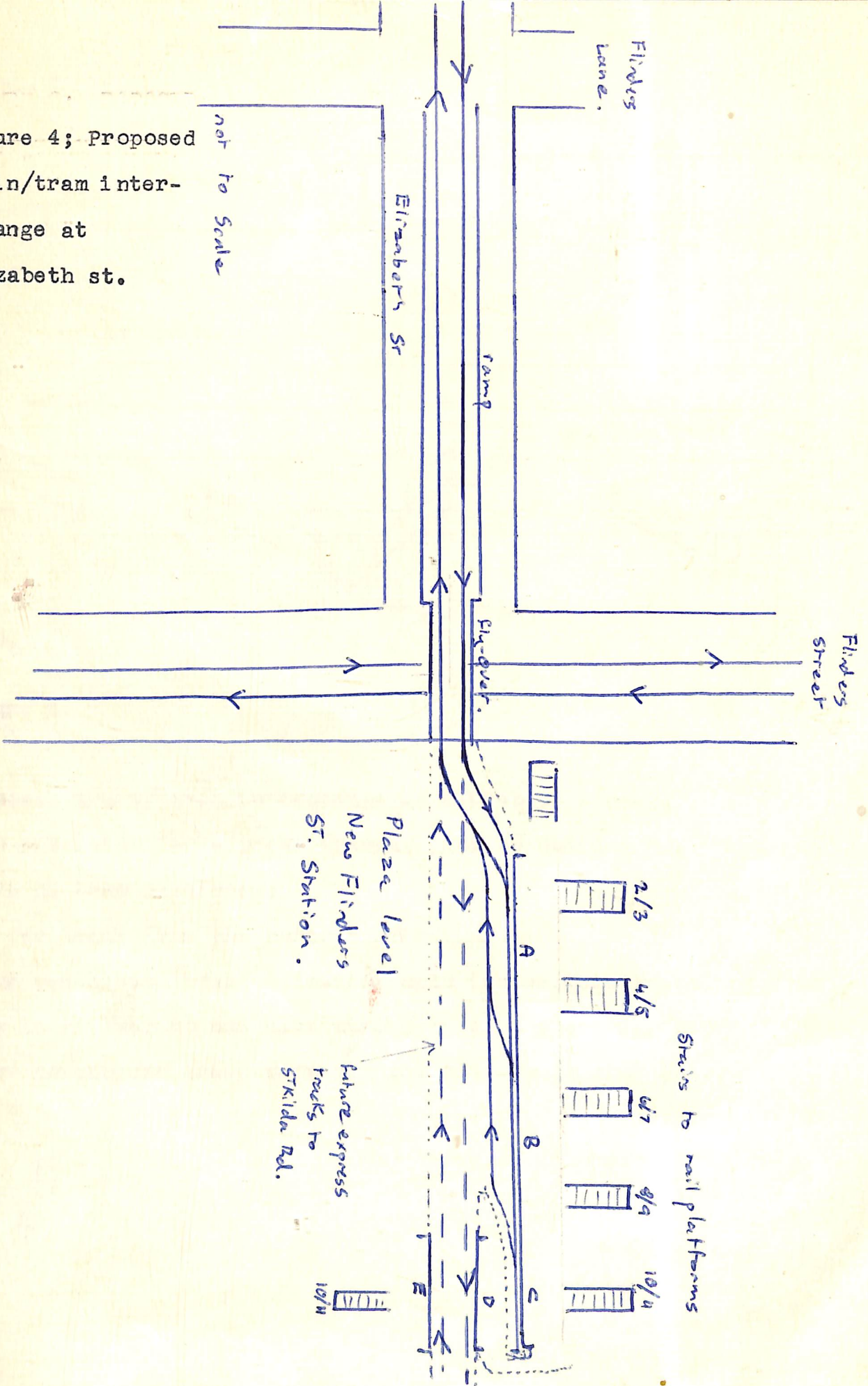
If the railway was not extended from St^TKilda then it would be necessary to link Elizabeth Street tramlines with St^KKilda Road if services were to be strengthened in the centre of the high density

Figure 3; Distribution of Employment 1961 (From MCC)



U.R.S. - Underground railway station (proposed)
 R.S. - surface railway station

8.
 figure 4; Proposed
 train/tram inter-
 -change at
 Elizabeth st.



9. N-S Section

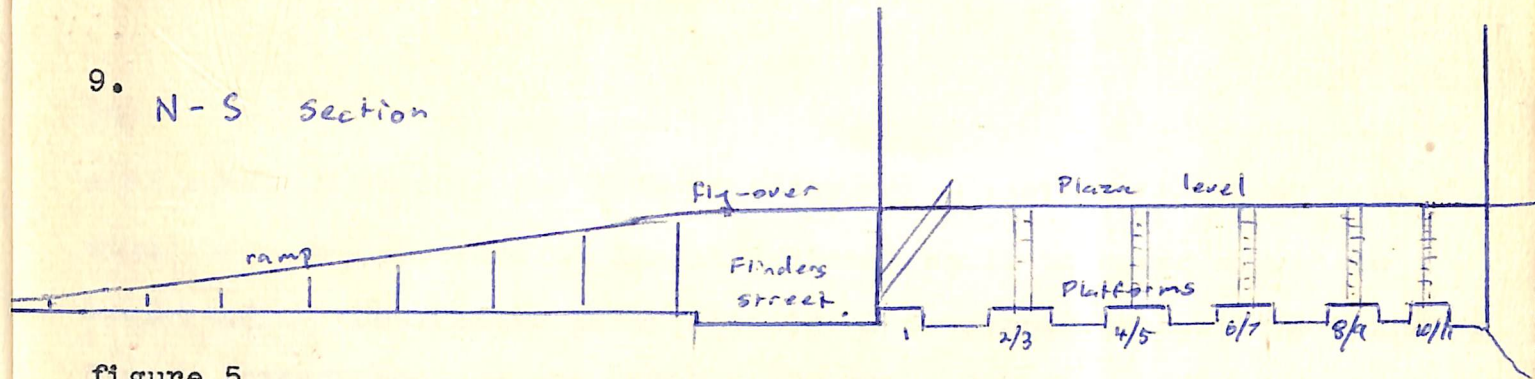
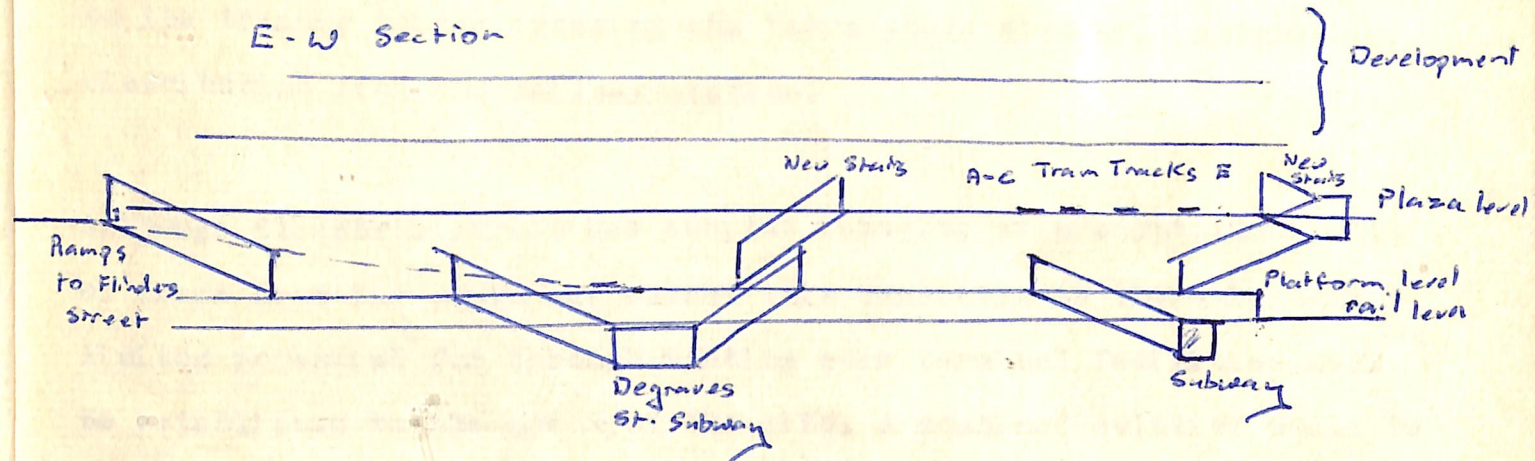


figure 5

E-W Section



to Scale.

figure 6.

Proposed train/ tram interchange at Elizabeth street.

with provision for express tramway link to StKilda Rd.

Notes on tram platforms;

A-C for trams from the north-terminating.

D for southbound trams - loading only (passengers traveling from city to railway to use cars terminating on platforms A-C)

E for northbound trams from StKilda Rd. - unloading only.

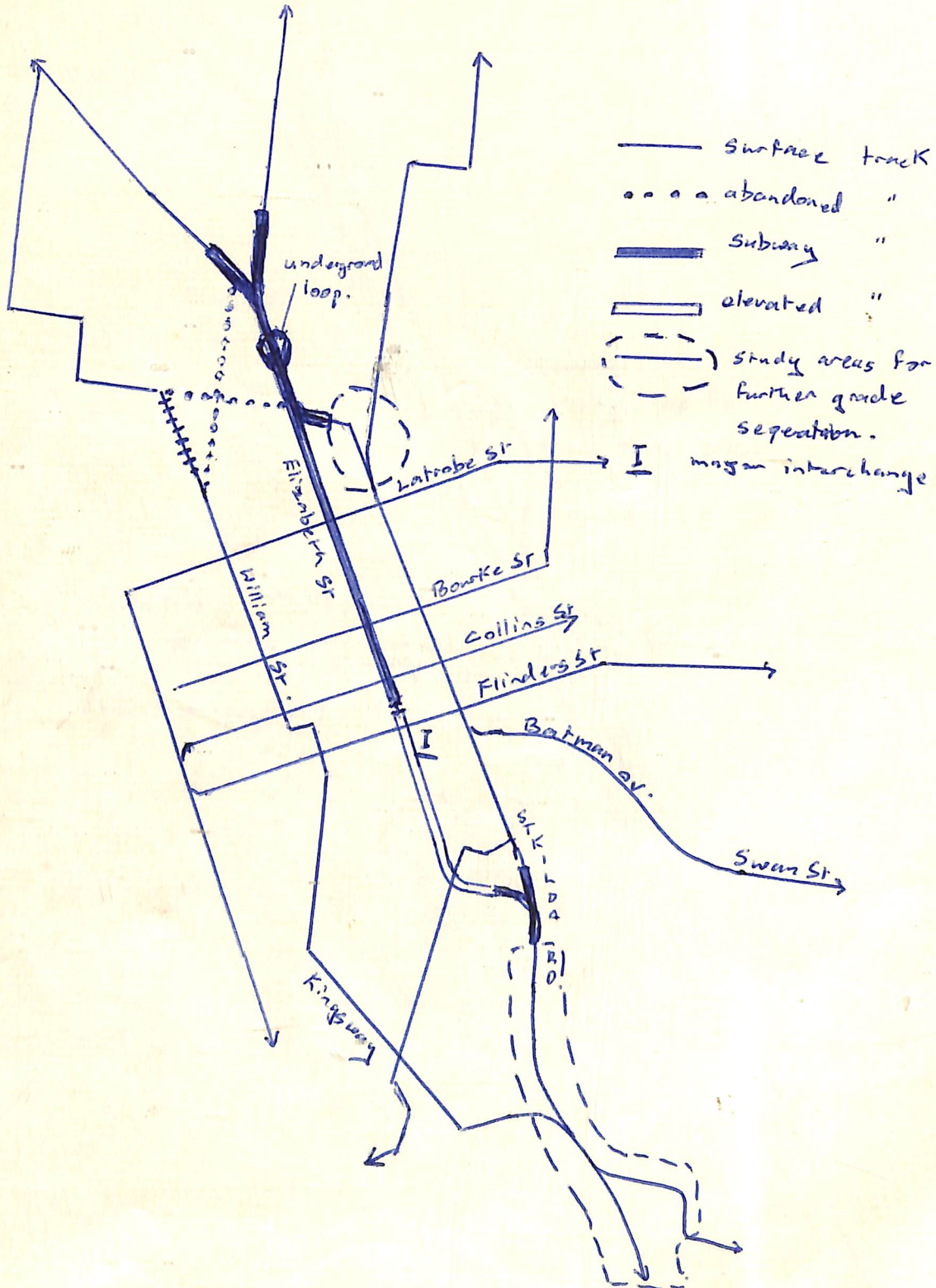
10.

work zone. By placing the link in reservation savings in travel time would be made, pressure on Swanston street would be eased and a new back-loading distributor service could be developed between the Flinders Street interchange and the StKilda rd/office development. A footpath on the tramway bridge crossing the Yarra would also aid passenger distribution from the railway station.

Although Elizabeth street has surplus capacity at present the inflow of trams from the south may exceed this capacity. As there is only limited potential for through routing some terminal facilities must be established to the north of the city. A combined solution would be to place the Elizabeth street tramway underground. The advantage of this course rather than selecting Swanston street for modification is that the economical cut-and-cover form of construction can be used throughout as the river crossing is elevated. This would necessitate some restrictions to other road users between Flinders and Collins streets. To simplify the tramway junctions at Victoria street and at the Haymarket the William street terminus could be linked to the Victoria street line and Peel street abandoned. This would also permit greater flexibility in the redevelopment of Victoria Market. The closure of the Victoria street tram between William and Elizabeth streets should be considered as although this deprives North Melb. of a direct line into Elizabeth it would eliminate two complex underground junctions. (even the M&MTB scheme would benefit from these modifications as the Swanston street underground would extend into this area.)

11.

figure 7; proposed elevated express link between Elizabeth st and StKilda Rd. - and proposed grade separation projects including William st/Haymarket/North Melbourne modifications.



12.

Flemington Road.

Royal Pde.

ramp

figure 8; detail of underground tramway at north end of Elizabeth street.

ramp

underground Turning loop for trams from St Kilda Rd. via the express link

Victoria Street.

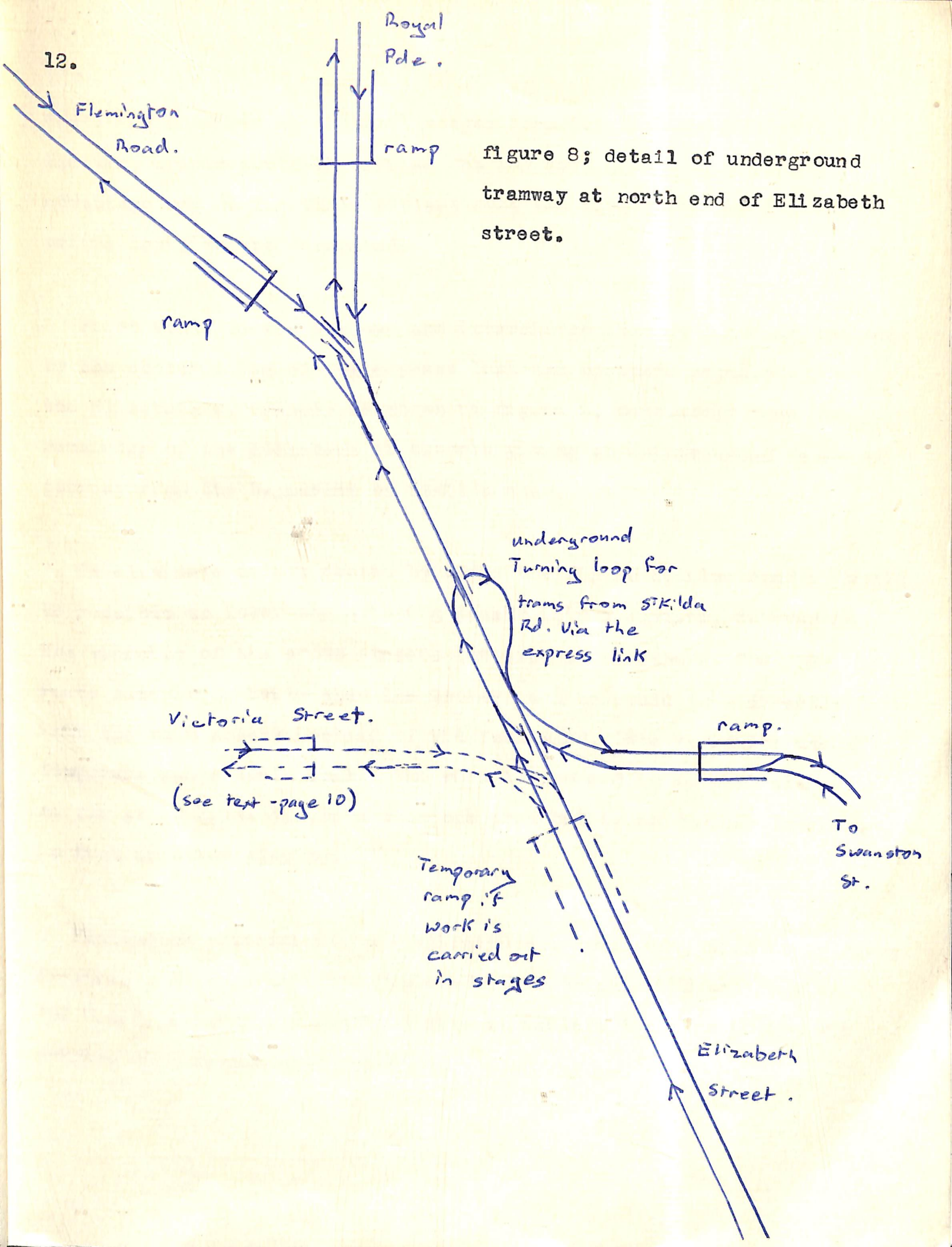
(see text - page 10)

ramp.

To Swanston St.

Temporary ramp if work is carried out in stages

Elizabeth Street.



13.

There are a number of distinct stages in which the lowering of the tram tracks could be carried out and each yields an immediate advantage and so the whole project does not have to be carried out before benefits are generated.

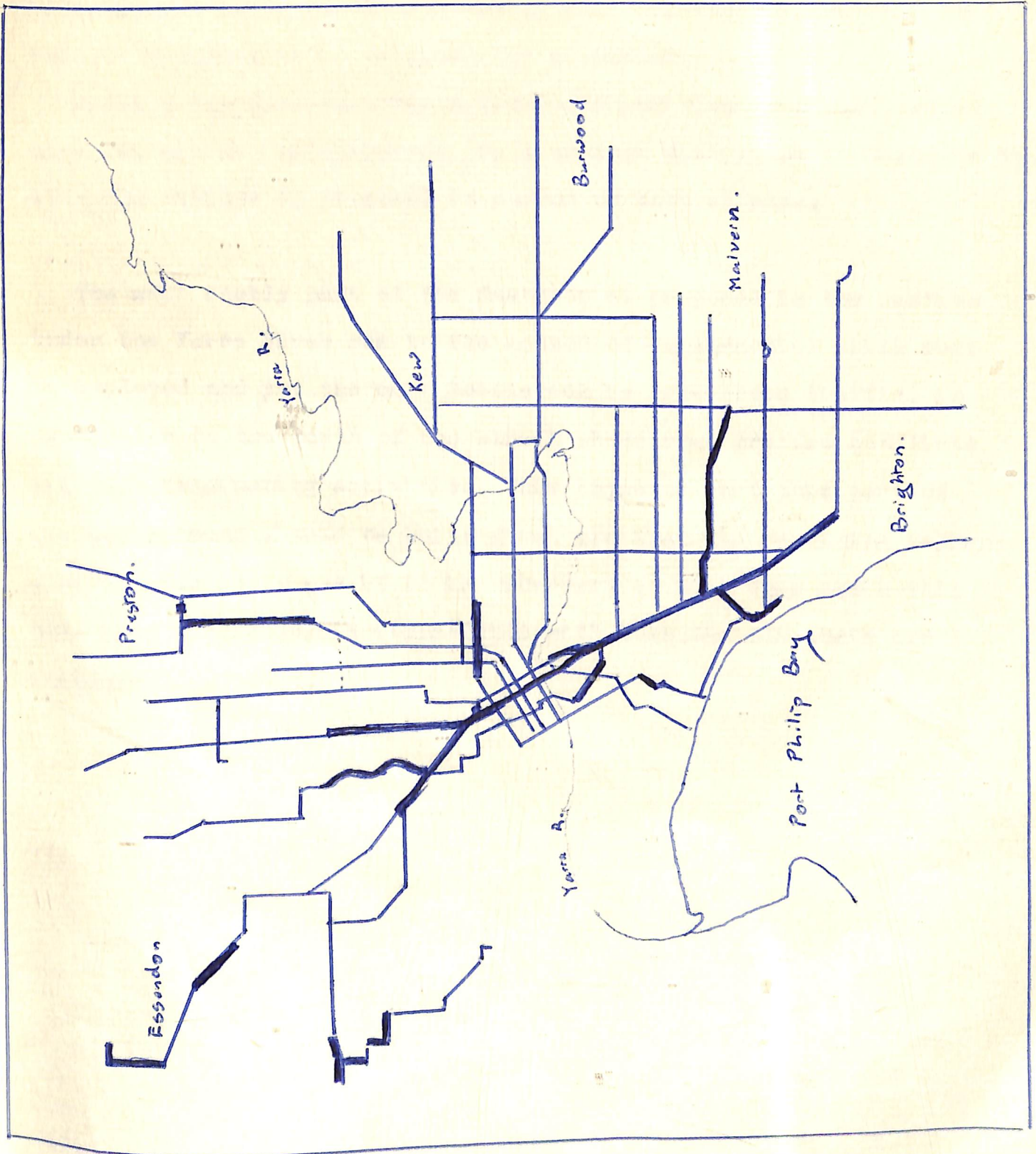
First would be the flyover and interchange already outlined followed by the construction of the express link and northern segment of the Elizabeth st tunnels as shown in figure 8. Next would come the remainder of the Elizabeth st tunnels giving an uninterrupted reserved journey from the Haymarket to StKilda road.

To eliminate delays caused by cross traffic in StKilda road it would be possible to lower the existing tracks into a cutting, covered in the vicinity of the cross streets but exposed elsewhere. The only route alteration being that the Toorak ^{and} line could join directly into the main artery instead of via Domain rd. Once again the use of temporary ramps would enable the work to proceed in several stages, as far as St Kilda Junction with the possibility of further lowering in High St under Alma Rd.

Plantation alterations in Flemington Rd, Royal Pde, High st (already proposed), Fitzroy st, The ^{and} Esplanade, and Brighton Rd would, with the C.B.D. alterations outlined give an excellent light rapid transit service from Essendon to Brighton.

14;

figure 9; existing and proposed private right-of-way,
Melbourne tramway system. (tunnel, open cutting, and at grade)



MODIFICATION TO THE M. & M.T.B. SCHEME

Although the upgrading of Elizabeth street rather than Swanston St is advocated it is worth considering what improvements may be made even if Swanston St is selected for attention.

Firstly the Haymarket/North Melbourne modifications outlined on page 10. may be incorporated; the link from William St to Victoria St. Also the St Kilda Rd proposal is common to both schemes.

The most costly part of the Swanston st proposal is the section under the Yarra River due to the method of construction which must be employed and yet the main bottleneck is from cross traffic, in particular to the north of the street where road traffic conflicts with the terminating activities. This suggests that this part of the underground should be built first and that the remaining segment must be studied to see if it is necessary at all. Once again this work (see figure 10) is compatible with both the Elizabeth and Swanston st schemes.

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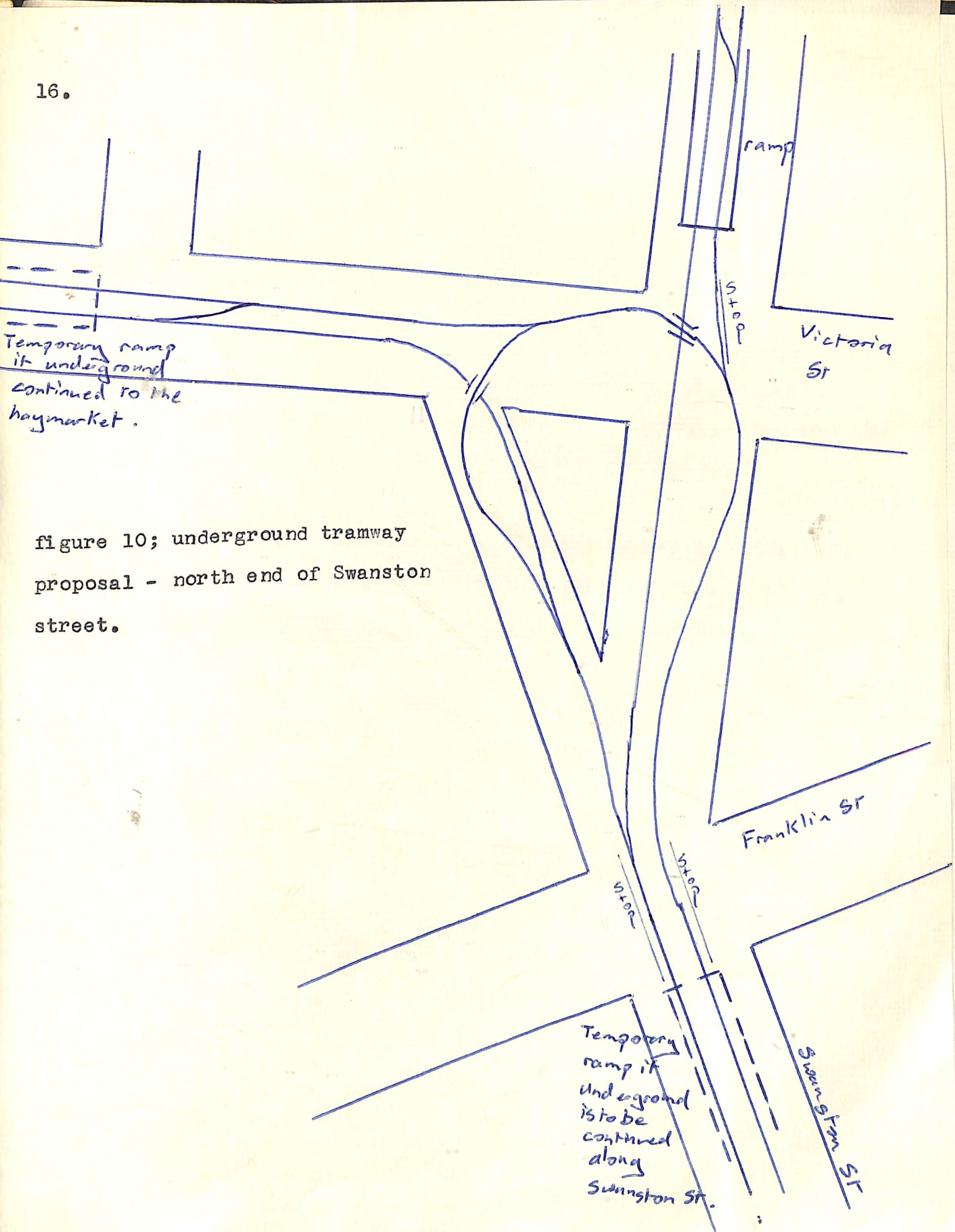


figure 10; underground tramway proposal - north end of Swanston street.

17.

THE NEXT STEP.

The main text of this paper was titled Starting point. The reason was that it only scratches the surface. Detailed economic and engineering studies are the next step to be taken.

Tramway improvements have a high priority - perhaps higher than railway alterations as far as commuter traffic is concerned as a higher proportion of C.B.D. oriented trips on public transport are made by tram than by train. (M.T.C. survey statistics).

New rolling stock requires private right of way to realise the full potential of the acceleration ability. This plan is the logical complement of plans to obtain 100 (or 125) new tramcars.