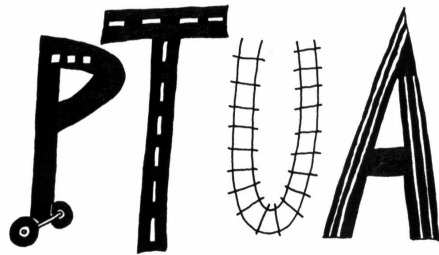


Inquiry into Sustainable Urban Design for New Communities in Outer Suburban Areas

*Outer Suburban/Interfaces Services & Development
Committee*

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Introduction

The Public Transport Users Association is pleased to be able to comment on this discussion paper. We are excited that public transport has a major role to play in bringing about a more efficient, sustainable, and fair city. Nowhere is this challenge more keenly felt than in the burgeoning outer suburbs, which will house the majority of the city's population growth.

This paper firstly explores the importance of public transport, looks at where we are at and outlines the service and infrastructure improvements required to maximise public transport's contribution in developing suburbs. In particular we recommend selective extensions of the rail system to existing and proposed urban activity centres and improvements to bus routes, operating times and service frequencies to meet modern community transport needs.

The paper then sets down what constitutes good neighbourhood design (from a transport viewpoint) and finds numerous good examples surprisingly close to home. Then we discuss the relationship between public transport and neighbourhood design. We conclude that the latter, though important, requires renewed emphasis on public transport service levels to work.

Strategic Role of Public Transport

The PTUA strongly supports the Melbourne 2030 aim of increasing the mode share of public transport to 20% by the year 2020. Benefits of a shift to public transport include lower overall transport costs, lower per-capita energy usage, reduced pollution and greater social equity. Whereas freeway expenditure encourages car use and undermines public transport through reduced patronage, investment in public transport benefits both drivers and public transport passengers alike. It is for this and other reasons that improved public transport is in the public interest. For Melbourne 2030 goals to be met, public transport use will need to grow dramatically across the metropolitan area, but particularly in the outer suburbs. We consider that these goals are practical, have broad public support and outline what is needed to make it happen.

Current public transport services in Melbourne appear to have been geared for weekday CBD commuters who finish work before 6pm, schoolchildren and the retired. Many cross-suburban, evening or weekend journeys are difficult, if not impossible to make on public transport. The result is that public transport does not suit modern transport needs and is irrelevant to growing numbers of people, especially those living in outer suburbs. A continuation of this approach is a recipe for inefficient use of infrastructure, falling patronage, and growing revenue shortfalls.

We support a new approach, with services and infrastructure designed to meet modern travel needs. This requires an integrated network of frequent interconnecting services that provided 'go anywhere anytime' capability with travel times that compete with the private car. The adoption of this approach is consistent with the Melbourne 2030 aim

of boosting public transport patronage and achieving a more economic, environmental and sustainable future for our city.

Service levels and planning

Melbourne bus services, particularly in outer suburbs, are amongst the poorest of any Australian capital city. Most routes only run five or six days a week and cease before 7pm. Waiting times average 50 minutes, even on weekdays. These service levels have failed to reflect social trends such as a greater dispersion of working hours and Sunday trading. As a result even people who want to use public transport frequently cannot do so due to the lack of service at the time they wish to travel.

Total public transport travel times can be up to 10 times longer than the equivalent car trip, especially for local or cross-suburban trips. This can be attributed to infrequent or absent service, and the tendency of bus routes to meander. Apart from the two recently-introduced Trainlink bus services, connections between modes are especially poor, with instances of buses every 30 minutes trying to 'meet' trains running every 20 minutes (for example) being common.

Though poor service frequency and operating hours is most conspicuous on the buses, it is also an issue on the suburban train network, particularly at night, where 28 minute waits for connections are not uncommon. The PTUA supports greater service frequencies on both trains and buses and longer operating hours.

Planning of public transport is a major issue, particularly in outer areas. We consider that like electricity and water, service should precede the residents, so that car use is not entrenched when people move in. There is also a need for regional reviews of bus services and redesign of routes to provide more direct and frequent services that connect with trains.

Infrastructure

Melbourne already has large amounts of fixed rail infrastructure compared to most other cities. However there are a number of places where suburban development has outrun, or threatens to outrun, the suburban train network by short distances. Other fringe suburbs have rail services already, but these services are hampered by inadequate track and station infrastructure. In all these areas, small network extensions, electrifications and other improvements would have disproportionate benefits.

The PTUA recommends the following rail projects.

1. New line to Rowville
2. New line to East Doncaster
3. Extension of 75 tram to Knox
4. Electrify Broadmeadows to Craigieburn
5. Extend Epping line to South Morang
6. Continue electrification from Sydenham to Sunbury
7. Reroute Pakenham line through Fountain Gate Shop Ctr

8. New station and bus interchange at Southland Shop Ctr
9. Duplicate and Electrify Frankston to Leawarra
10. Duplicate and Electrify Leawarra to Mornington
11. Duplicate and Electrify Sunshine to Melton
12. Duplicate single-track sections on Hurstbridge line
13. Duplicate Upper Ferntree Gully to Belgrave
14. Duplicate Mooroolbark to Lilydale
15. Duplicate Dandenong to Cranbourne
16. New station at Eltham North (Allendale Road)
17. New station at Cave Hill (Mooroolbark Road)
18. New station and bus interchange at Hampton Park
19. New station and bus interchange at Newport West
20. Bus priority on major cross-regional routes

These projects are important to allow a growing share for public transport in the outer suburbs. Their early construction would allow new suburbs to develop without car-dependence being entrenched from the start. The combined capital cost of these plus allied public transport improvements in inner and middle suburbs would amount to less than \$2 billion for the entire metropolitan area. This compares to over \$6 billion for road extensions that would otherwise be built. Annual running costs for the 'public transport' and 'freeway' alternatives would be fairly similar, with public transport being slightly cheaper¹.

Features of good neighbourhood design

Examples of good neighbourhood design exist surprisingly close to home. A huge swathe of the middle suburbs of Melbourne, particularly in the north, east and south-east contain dozens of examples of good design². The main ingredients of these neighbourhoods include:

1. A basic grid layout of major roads every 0.8 to 1.6 kilometres (which allow fast and direct bus routes)
2. Shops and low land-use community facilities grouped along grid roads, with greatest concentrations at intersections and/or railway stations. In turn, medium and high density housing is clustered around shops to provide an 'urban village' environment.
3. Permeable parallel local streets run within this basic grid pattern, with cross-roads preferred over T-intersections. Traffic calming measures should be designed to slow motor traffic on quiet streets while allowing pedestrians and cyclists to travel by the shortest available route with maximal right of way.

¹ PTUA It's Time to Move, page 35

² In contrast, most suburbs of Canberra are a good examples of transit-hostile street layouts.

Raised pavement sections and pinch-points with cyclist bypasses are considered more suitable than roundabouts or chicanes for this purpose.

4. Even main roads are lined with shops and houses (to reduce crime opportunities through passive surveillance)
5. Traffic lights with pedestrian-actuated signals at intersections (roundabouts pass an uninterrupted stream of traffic and hamper crossing pedestrians)
6. Bus and tram stops are near signalised intersections (where people can safely cross the road if required)
7. Railway stations located near intersecting streets (to allow easy transfer to buses)
8. An appropriate balance between strip shops, corner stores and large shopping centres to ensure that goods and services are within walking distance of as many residents as possible. Larger centres have a railway station with bus interchange.
9. Building entrances to address the street and footpath. Any off-street parking that may be required is provided behind (not in front of) main street shops.
10. Main streets are designed for significant pedestrian activity and crossings provided at frequent intervals

Though not all middle suburbs contain these features, most contain many. They are not perfect, however and the following improvements would be desirable:

1. Pedestrian crossing facilities to be provided at all bus stops to improve safety. Though this can range from zebra crossings to underpasses to pedestrian actuated lights, in most areas a central pedestrian median or refuge (with grab rails) is sufficient.
2. Small parks are within walking distance of all residents, but larger parks (and schools with large ovals) are located about 10 min walk away from activity centres to conserve land for higher density access (while still allowing public transport access and walkability)
3. To reduce crime, noise, graffiti and increase privacy, no buildings should back onto railway lines. Instead buildings will front onto a quiet traffic-calmed street running parallel to and abutting the line³.

The points appear to be consistent with the 'traditionally-planned' suburbs mentioned on Page 52 of the discussion paper. According to Planning Western Australia,

³ This is consistent with the suggestion on page 78 of the discussion paper where CPTED recommends houses face parks rather than back onto them.

'Traditionally designed suburbs are therefore likely to contribute to the most sustainable form of development...'⁴.

As explained elsewhere, it should be noted that though good neighbourhood design can make public transport services more effective, efficient and economical to run⁵, it should be understood that they will have little effect on patronage levels if services are absent or of poor quality. However once the decision to improve service is made, it will be somewhat more economical to do so if attention has been paid to the above points in designing neighbourhoods.

Relationship between public transport and urban design

The relationship between urban design and public transport is complex.

The PTUA supports transit-friendly urban design, along with the provision of high quality services and facilities. But without the service there can be no patronage, no matter how well the neighbourhood is designed.

It would be fair to say that Melbourne is a city with two different styles of urban design and street layout. The time the suburb was developed has the greatest bearing on the style chosen.

The inner and middle suburbs have main roads that largely follow a grid pattern. Many have trams going down them. Shops are common along these roads, especially near railway stations. Smaller streets are normally also straight, running parallel to the main roads. There are however some variations within this pattern. For instance the prewar suburb of Carnegie has a similar layout to the postwar suburb of Clayton. In both cases shops are gathered along a north-south road that has a railway station to the east, a major highway to the north and another busy road to the south. However because Clayton was built in the period of higher car use its main street is much wider than Carnegie's. Nevertheless the surrounding residential streets are at least a partial grid and the urban form retains a similar pattern.

Outer suburbs are frequently accessed by freeways or highways that may not always have direct building frontages. There is still a road grid in some areas, but the spacing is increased. Shopping centres are less likely to be near railway stations and are most often surrounded by acres of parking. Houses are mostly on cul-de-sacs or loop streets, the average distance between services is greater and pedestrian trips are often indirect.

The former pattern, used in the inner and middle suburbs is close to 'traditional' or 'new urbanist' layout, whereas the latter is the freeway/shopping centre/cul-de-sac approach designed around the car. 'New Urbanism' seeks to recreate the best aspects

⁴ Planning Western Australia, 2001: 36

⁵ Brewer/Hensher Operating a Bus and Coach Business, 1997: 86

of traditional design in new developments. Aspects of this which assist public transport, either for passengers or the operators are discussed later.

If urban form was the biggest factor affecting public transport patronage, one would expect large differences between the inner/middle and outer suburbs and smaller differences between the inner and middle suburbs.

Trips per capita per annum for Melbourne suburbs are as follows⁶:

Inner 221

Middle 90

Outer 58

This indicates that the biggest patronage difference is between inner and middle suburbs, even though both have 'traditional' street layouts. Where there is a change between street layouts (ie between middle and outer suburbs) there is a smaller difference in patronage. Thus we agree with Dr Mees that urban form by itself does not automatically translate into higher public transport patronage (page 72).

If it's not urban form, what is it? While some of the difference can be explained by different population densities between inner and middle suburbs, the density gradient for Melbourne is comparatively flat compared to other cities. In any case the difference between residential densities between suburbs is less than the vast differences in public transport service provision. Whereas the typical inner suburban received a tram every 12 to 20 minutes (30 min Sunday evenings) seven days of the week, the typical outer suburban resident has no public transport after 7pm or on Sundays. At other times waiting times of an hour are not uncommon. Though it's a simple point, it must be said – *the service must exist for people to use it!* We can only conclude that the provision of public transport is the main determinant of whether people will use it⁷.

Though good urban design by itself does little to promote public transport patronage (especially where most passengers are PT captives) there are still sound reasons for it. As noted in the discussion paper, these contributions can include matters such as improved walkability and greater perception of safety⁸.

There are also clearly interactions between the street layout of a neighbourhood and the ability to economically provide high quality public transport services⁹.

⁶ Mees A Very Public Solution, 2000 : 208

⁷ This is lent further weight by Mees (2000) who gives an example of Toronto whose middle suburbs lack the traditional urban design common in Melbourne middle suburbs. Despite this, public transport patronage in Toronto's middle suburbs holds up well compared to the inner suburbs, because service provision is much higher.

⁸ This is an important issue for public transport passengers - Page 76 of the discussion paper cites survey results indicating that public transport at night was considered most unsafe.

⁹ Brewer/Hensher Operating a Bus and Coach Business, 1997: 86

As mentioned in the Melbourne 2030 discussion document, the critical components of public transport service quality include:

1. Route coverage
2. Frequency/span of service
3. Reliability
4. Speed
5. Co-ordination

Of these, neighbourhood design affects route coverage, service frequency (for a given number of buses), speed and potentially reliability and co-ordination. From the operator and government side, bad neighbourhood design can reduce farebox revenue per kilometre and make providing a quality service expensive. These aspects will now be examined in detail:

Route coverage

The establishment of a new community a kilometre or more off a main road (which already has a bus service) might provide peaceful surrounds for the residents, but may mean that they have no public transport.

Options include: (1) providing a new route, (2) diverting the existing route, or (3) leaving the area without service. Providing the new route leads to additional running costs, diverting the existing route lengthens travel time for existing passengers and leaving the area unserved means that residents are denied transport choice.

Had the development been established along the main road instead, they would have had public transport service from day one. In addition patronage on the existing route would grow and revenue would increase. Resources earmarked for the new route could be used to double the service frequency of the existing route, thus further increasing patronage, revenue and making public transport more attractive. An added bonus of development on the main road is that the shops would attract business from passing motorists, meaning that a wider range of businesses could be established earlier in the estate's development. This makes the development more self-contained and more walkable.

Coverage is also an issue inside large developments. Extending coverage to parts of some developments would require the buses to double-back. This is an inefficient use of vehicle and driver time. However a failure to do this would result in poor route coverage and people having to walk a kilometre or more to the bus stop.

As well as street layout, the location of important facilities like shopping centres in a subdivision is important so that these can be economically served by public transport. Placement at a site accessible by most bus routes in the area is important. A location near a corner where two intersecting routes intersect is most desirable. Buses should stop outside small and medium size shopping centres (with appropriate pedestrian

crossing nearby) but use an interchange for larger centres (sited between the centre and the road, with car parking behind).

Service frequency

Though frequent service can be provided on any street whatever its layout, the driver and vehicle costs can be expensive relative to the number of passengers served. A well-laid out suburb may require two routes for public transport to be within walking distance of all residents. In some cases where roads connect, the routes need not even be new – extensions to existing routes may suffice.

In contrast, a poorly laid out suburb may require four separate new routes, with route duplications in some areas. Assuming that there is a fixed number of drivers and buses to serve the area, there might be the choice of running the two routes every fifteen minutes or the four routes every 30 minutes. The well-designed suburb receives the frequent service, whereas the poorly laid out suburb receives a poor service. Because service frequency is the key to attracting patronage, the well designed suburb offers operating efficiencies, lower per-capita fuel use and a lower proportionate public subsidy.

Speed

Public transport travel speed has two components (i) off-vehicle and (ii) on-vehicle. Off-vehicle time is primarily walking and waiting. Walking times can be reduced by providing a grid-style street layouts (or at least pedestrian shortcuts at the end of cul-de-sacs) so that all residents have a direct walk to the bus stop or railway station. Waiting is reduced by more frequent services, as discussed above. On-vehicle time can be reduced if buses can travel along a straight road rather than negotiate loop streets (or worse still) double-back along cul-de-sacs, as is the case in poorly designed neighbourhoods. Though the actual delay might be 5-10 minutes, the delay as perceived by the passenger is much greater, especially if they are used to driving a car.

Of even greater importance is the interaction between speed, service frequency and operational efficiency. The greater speed possible through more direct services may allow more frequent services with the same number of buses and drivers. This will encourage greater patronage and revenue, especially if the bus service can be made as frequent as its connecting train service and the passenger is assured of a good connection every time. The social and economic benefits of this increased patronage and reduced travel time are obvious.

Reliability

Neighbourhood design has comparatively small impact on reliability, unless there are streets that are difficult for the driver to turn out of because of traffic. Traffic light priority can assist reliability here.

Also important is the interaction between service reliability and frequency – the cancellation of a bus service that runs every 10 minutes will have less impact than the cancellation of an hourly service.

Co-ordination

Thus was mostly discussed under 'Speed'. However improved frequency is also important. A grid-style road layout with frequent routes running along each gives scope for passengers to be able to transfer to intersecting routes is user-friendly and encourages use of public transport for cross-suburban trips as well as towards the CBD.

Other matters

Operational economies have already been discussed, with taxpayers picking up the tab for poor services running through poorly designed suburbs. Safety is improved with the higher patronage and shorter waiting times typical of effective, well-run public transport systems, which is indirectly assisted by good urban design¹⁰. Having a smaller number of frequently running routes operating along straight roads that are well-known to most Melburnians makes catching public transport more akin to driving a car and suitable for more trips. All public transport users are pedestrians, and many are cyclists so we support measures that improve urban amenity for these groups.

Good urban design does not guarantee high public transport patronage unless the services are there to start with. Thus we place the highest priority on public transport service improvement in order to give residents of Melbourne's growing suburbs real transport choice. However aspects of urban design (chiefly street layout, urban centres and location of facilities) do affect the usability and operational efficiency of public transport, so we see significant benefits in it.

The role of government

Though buildings may last for 20 – 50 years, some aspects of urban design such as street layouts can last for centuries. As has been shown in the past, and continues to be shown today, it is often the taxpayer who foots the bill for bad urban design. Also people have to live in these areas and can be disadvantaged by bad design years after developers have taken their profits.

The PTUA therefore supports a strong role for government in public transport, urban design and allied areas to protect the public interest. We support the following:

Public Transport

1. The establishment of an integrated public transport planning and marketing authority to redesign bus routes and timetables with a view to revising routes, extending operating hours, improving service frequencies, and improving co-ordination with trains.

¹⁰ Though actual examples of this in Melbourne are scarce.

2. The adoption of BusPlan to provide better public transport in the majority of Melbourne beyond walking distance of trains and trams.
3. The completion of the sixteen rail projects outlined previously to extend the reach of the rail system to growth centres and corridors.
4. 10 minute service frequencies on the metropolitan rail system day and night (15 min late night)
5. Public transport service standards for new developments (eg 80% of the population within 1km walk of a seven-day service running every 15 minutes or better

Urban Design

1. A requirement for new (and redeveloped) neighbourhoods, subdivisions and estates to follow good neighbourhood design principles as outlined above.
2. Introduction of a Metropolitan Pedestrian Plan backed by funding to improve pedestrian links throughout Melbourne, but particularly near shops, railway stations and bus stops.
3. Introduction of maximum waiting standards for pedestrians when crossing roads (30-60 sec suggested) and the installation of crossing facilities at least every 500 metres along busy roads that do not comply.
4. The concentration of urban growth along rail corridors.
5. The abolition of planning regulations that require a minimum numbers of parking spaces be provided for new developments.
6. Limits on the maximum number of parking spots (especially at designated transit cities).
7. A requirement that new subdivisions not be enclosed by walls.
8. A requirement that streets in subdivisions connect with neighbouring subdivisions to enhance walkability and provide direct routes for buses.

Conclusion

The PTUA welcomes planning towards more sustainable outer suburban communities. We have provided a plan to build better transport and urban amenity into these communities in an efficient, environmentally responsible and fair manner.

Further details of PTUA policies can be found in our publication “It’s time to Move”, available from the Association. Please contact our office if you would like clarification on any of the points raised.